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Bank enticed into pioneering role on Starnet

SYDNEY — The Commonwealth Bank has been enticed on to Aussat's new Starnet satellite communications system as the service's first user. The bank will set up a pilot system of just three very small aperture terminals (Vsats) at branches in Sydney.

The remote, 1.8 metre diameter earth stations will be linked to the bank's main computer centre through a hub earth station at Aussat's Satellite Control and Operations Centre in the Sydney suburb of Belrose.

The pilot service, which will be used for two-way data transmission between the branches and computer centre, is expected to be operating by the end of June.

Len Spencer, the bank's chief general manager of retail banking, said that characteristics of the satellite system, such as point-to-multipoint communications, were extremely attractive for an organisation such as the Commonwealth Bank.

"The bank is highly dependent on communications for the day to day conduct of its business. Starnet could offer substantial potential to improve efficiency and reliability in our operations."

He did not say what specific uses the bank would make of Starnet, but acknowledged that any use would be complementary to its existing terrestrial network.

The pilot service will be evaluated for three months with a view to the possible progressive expansion of the network to include other branches.

The bank's decision to sample the system is a relief for Aussat, which had been casting about for users since the service's introduction in January (*Communications World*, Feb, p1).

Firm faith in PCs

SYDNEY — Accountancy group Deloitte Haskins and Sells is to run its entire Australian computer operation, covering 24 branches, on more than 700 networked PCs. Its $A2 million deal to buy Novell's Netware from Data Peripherals will make it one of the first major companies in the world to adopt a totally PC-based solution to its computer needs. Rob Hunwick (rear) and Karnig Momdjian of Deloittes describe the company's networks and strategy in a case study (see page 21) within the Lan Special Feature

New shots in Telecom war

By Peter Scott

SYDNEY — Troops are massing against Telecom as both the Australian Telecommunications Users Group (Atug) and the Australian Information Industry Association (AIIA) drew up their battle plans and fired new salvos.

Atug led the strike last month with a letter to telecommunications users seeking examples of the adverse effects of Telecom's policies or actions in the fields of the interconnect policy, the monopoly over small business systems and telex, and the control over PABX maintenance.

Early in March the AIIA joined the fray for the industry lobby when it announced its Telecommunications Policy and Strategy paper. The document was headed by the desires to achieve competition and fair trading practices and to increase private sector participation in customer premises equipment and value added services.

Atug's letter to telecommunications users claimed the group had received senior legal advice that Telecom is subject to the Trade Practices Act, and that the Trade Practices Commission shared that view.

"We do not believe that Telecom's liability to the Act is exempted in any way," the letter stated.

It also pointed out that Telecom may now seek a change in legislation to exclude its practices from the commission's surveillance. Atug has approached the Minister for Communications, Michael Duffy, requesting that he not permit such steps by Telecom.

Responses to the letter will be used in the preparation of a formal submission to the minister, but not to challenge Telecom's monopoly of the terrestrial common carrier network.

Wally Rothwell, executive director of Atug, said the reaction to the letter had been very good. "Everybody has been on side. There were no opposing views," he said.

Rothwell said there were no thoughts of Atug joining forces with the AIIA.

From the industry side, Bob Mounic, executive director of the AIIA, said the association's policy sought initiatives that promote competition and fair trading practices, efficient use of the telecommunications infrastructure and greater private sector participation in customer premises equipment and value added services.

"These objectives cannot be met without significant change in the existing environment," Mounic said. "At the moment Telecom is using its by-law powers as a vehicle to assume a strategy policy role."

The AIIA has also called for the establishment of an independent regulator which does not provide telecommunications services. "An independent regulator would involve industry in decisions, provide consumer protection and promote fair competition through the licensing of basic and value added services providers," Mounic claimed.

Datacraft wins Vic network

MELBOURNE — Implementation of a strategic plan covering networking of more than 160 terminals and printers throughout the Victorian Department of Conservation's operations has brought a major order to Datacraft for its Tellabs equipment.

Caesar Formica, information systems manager for the department, said the terminal devices were spread throughout the State in regional centres, research institutes and some head office locations. An additional 100 devices will be added to the network this year.

The department had developed a strategic plan, which included the need to create a Statewide communications network to meet the requirements for access to computing facilities and information systems at the regional centres, which will be linked to two Prime 9955 minicomputers in the Melbourne computer centre.

The Datacraft equipment, worth about $A400,000 so far, consists of Tellabs 331 XPlexers in the main centres. They are connected through Telecom's DDS and Datel lines in each region to Tellabs 330 Dataplexers in the field, which in turn interface directly with asynchronous devices at each location.

"The advantage of a network of this type is that we can easily and automatically switch authorised terminals to either or both Prime hosts, thus disallowing unauthorised access while providing maximum flexibility for both normal and contingency operations," Formica said.

The network spans Victoria and gives personnel at each remote location online access to human resource, financial, land management information and scientific and research applications at the main computer installation.

Formica said it should be able to meet the department's networking requirements for the next three to five years.

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Managing comms for road network
The man behind the road services for the whole of NSW
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Netview/Netmaster battle finally starts 'down under'

SYDNEY — IBM Australia has released the Netview suite of network management software for large SNA networks, almost one year after the US release.

The delay in bringing the product to this country is ironic, since Netview was strung together in order to counter the highly successful Netmaster software produced in Australia by Software Developments Pty Ltd.

A spokeswoman for IBM said Netview provided all the functions of the existing network management programs. Network Communications Control Facility (NCCF): Network Problem Determination Application (NPDA); Network Logical Data Manager (NLDM) and functions from the Network Management Productivity Facility (NMPF) and the Vtam Node Control Applications (VNCA).

She said it was not just a collection of existing packages, but a full suite that provided enhancements to the existing software, including support of more products and automatic recovery procedures.

The system also provides the user with an image of a single product and reports network activity to the operator's screen.

Two versions of Netview, for MVS/370 and MVS/XA, are available now. A third version for VM will be released within the next three months.

When Netview was first announced in the US it was described as IBM's attempt to counter the Australian product Netmaster, which is marketed internationally with considerable success by Cincom Systems Inc.

In the intervening year Netmaster has been significantly enhanced by its developer, Software Developments Pty Ltd (*Communications World*, Feb.p23).

UK eases rules

LONDON — The UK government has relaxed its rules over the transmission of data on private networks to allow greater competition.

It will create a new licence, the Value Added and Data Services Class.

Olex wins $4m cable contract

TOTTENHAM, Vic — Cable manufacturer Olex has won a $A4 million contract to supply 75 per cent of the cable for the first stage of Telecom's optical fibre link between the east and west coasts of Australia.

Work on the first stage, the 640 km stretch between Perth and Kalgoorlie, was due to start late last month.

Olex designed the cable to Telecom's requirements and is manufacturing it in Victoria. The cable is produced in exceptionally long lengths of up to 10km, which an Olex spokesman claimed would lead to significant savings on the number of joints required.

Tenders have been called for the supply of cable for the second stage of the project, which is the 1400km link from Kalgoorlie to Glendambo in South Australia.

Group forms to foster network computing links

BOSTON, Mass — A newly formed computer standards group calling itself the Network Computing Forum (NCF) last month kicked off a drive to advance standards that will enable networks of multivendor devices to share programming loads.

Organised by Apollo Computer Inc, NCF has 31 charter members from both the user and vendor communities.

Large user members include Boeing Computer Services, Caterpillar Inc, General Electric Co, Rockwell International, Westinghouse Electric Corp and the Universities of Lowa and Michigan.

The vendor list includes Apple Computer, 3Com Corp, Motorola, Texas Instruments, Concurrent Computer Inc and UK company Racal-Redac.

A spokesman said the NCF would foster practical applications of network computing, which he described as a new approach to computing in which workstations, supercomputers, other computer systems and a variety of network servers are tightly integrated through high performance links.

"It is the next logical, evolutionary step in computing — the successor to batch, timesharing, dedicated personal computer and the current generation of workstation networks", he claimed.

Computing on a network through a workstation requires the tight integration of multiple computing resources on the network to serve the diverse needs of work group. In a network computing environment these resources, both general purpose and specialised, appear as a closely co-operating system to the user seated at a workstation.

The first technical session of the NCF is scheduled for the second quarter of this year.

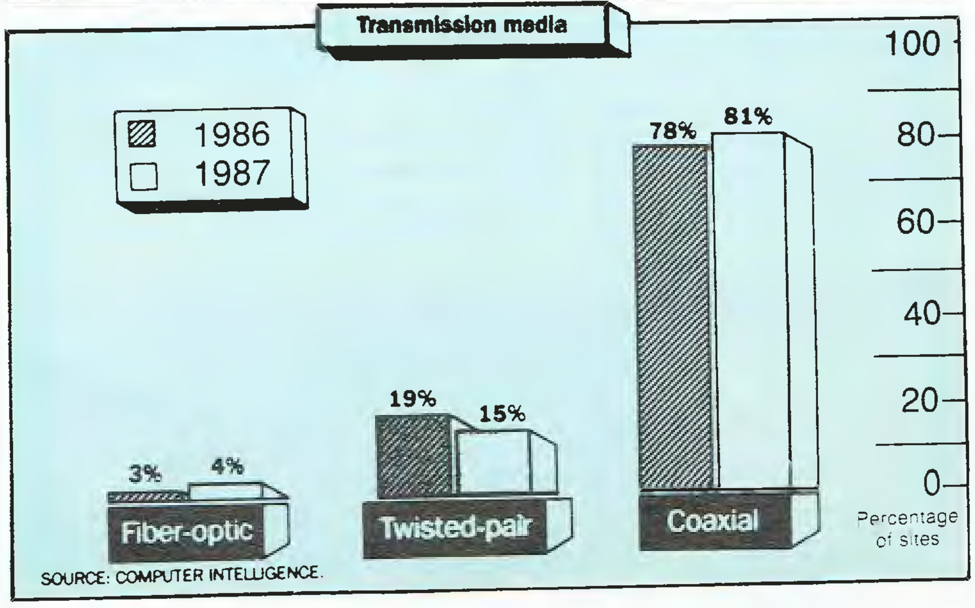
E-mails aid Irangate probe

WASHINGTON — The Tower Commission, set up by President Reagan to investigate the scandal over aid to Iran and the Nicaraguan rebels, got a boost when it obtained electronic mail messages sent by key participants in the scandal.

The messages were apparently assumed to be secure by such users as Lieutenant Colonel Oliver North, John Poindexter and Robert McFarlane, who had not realised the originals were stored in a central computer archive.

The messages were sent on an IBM Professional Office System running on an IBM mainframe controlled by the White House Communications Agency for the National Security Council.

Top transmission choices for Lan users



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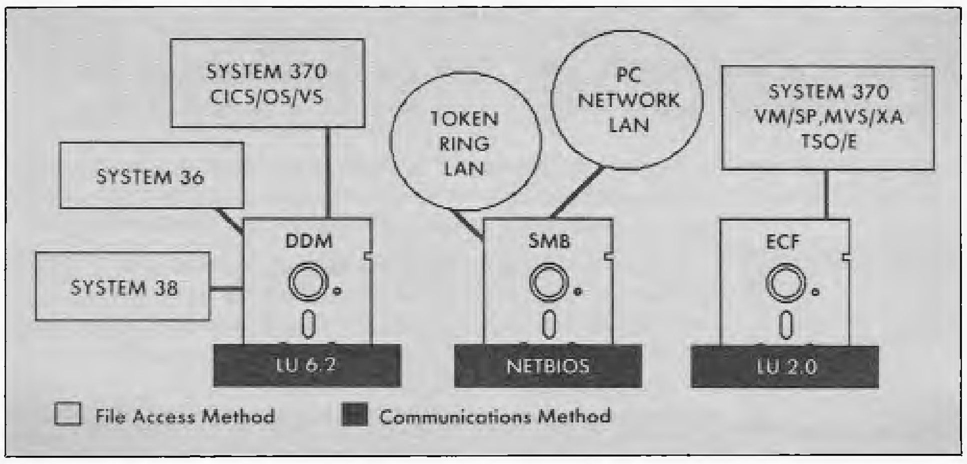
PAS 1159

IBM launches DDM/PC

Direct PC access to mainframes

NEW YORK — IBM has unveiled a developer's tool that permits the creation of personal computer applications which directly access mainframe and minicomputer files. The Distributed Data Management/PC (DDM/PC) based on the DOM architecture announced in the US in mid-1986 (but available only in the US) is seen as a part of the company's strategy for total systems solutions.

An IBM spokesman said applications created with DDM/PC allow users to manipulate and delete files held on mainframes or minis without downloading the data. The product can communicate with IBM mainframes running CIVS/OS/VS, as well as with System/36 and System/38 midrange machines. PC applications must be written in C, Pascal, or Macro Assembler and must run alongside DDM/PC.



The system on which the files reside — called the target — must be running DDM software.

IBM spokesmen claimed that users of applications created with DDM/PC gain access to all the large system's file management facilities without needing to download the file. Although such applications run under PC-Dos, a difference in the way in which DDM/PC and PC-Dos handles files prevents applications with Dos file structures, such as databases packages or spreadsheets, from gaining DDM functionality.

Analysts believe that DDM/PC complements the Enhanced Connectivity Facility (ECF), while offering more features than IBM's Server Message Block file access standard, which is implemented in the PC Lan program, but which does not offer a mainframe access method.

The differences between the three standards lie in the types of hardware communications and mainframe access they support.

DDM/PC uses Advanced Program-to-Program Communication (APPC), also known as LU6.2, which is part of SNA.

ECF, which is not yet available in the US, is said to communicate using LU2.0, also known as the 3270 data stream, so that a PC using ECF would be connected to a mainframe in the same way as as terminal.

SMB runs with Netbios, which means it works with the Token Ring Network and PC Network. It is widely used by third party network vendors who, because of the lack of host file access, must write their own drivers if they wish to communicate with machines other than PCs.

MUDDLE OVER NETBIOS

WASHINGTON — IBM has confused communication software developers by telling them they should switch the protocols they work with. After spending more than a year encouraging them to use APPC, the company has now suggested that developers should use a more recent, but quite different protocol.

At a communications networks seminar in Washington one senior IBM executive encouraged developers to use the Enhanced Connectivity Facility protocol rather than Netbios. Frustrated developers explained that while the Token Ring supports Netbios, IBM has encouraged developers to use APPC instead when writing programs that communicate with computers outside the Lan. The IBM spokesman told the developers that ECF had advantages over Netbios in the pure PC environment, as well as with peer-to-peer networking between mainframes and PCs.

Another spokesman said IBM continued to view Netbios as the more appropriate protocol for many situations and would continue to support it.

OTC funds $2.5m venture for new satellite system

SYDNEY — An innovative satellite communication system designed and manufactured in Australia is the goal of a multi-million dollar research venture financed by the Overseas Telecommunications Commission (OTC).

A six-member consortium of academics, scientists and industrialists from three States will co-operate on the venture, which has been given two years to come up with a high-performance, high efficiency, low cost earthstation prototype. A further year will be spent putting the prototype into production.

The consortium brought together for the $A2.5 million project comprises the Csiro Division of Radiophysics, the Microwave Technology Centre at the University of Queensland, South Australian company Codan Pty Ltd, the South Australian Institution of Technology, and both the Air Navigation Group and the Communication Science and Engineering Laboratory at the University of Sydney.

The groups will work on a roof-top Ku band earthstation for International Business Services, for which a signficant market has been identified. Such systems are used for business communications like the transfer of banking data between countries.

The system is also expected to be able to provide data, voice and facsimile services at low capacities, while it should handle teleconferences and high speed data services at high capacity.

An OTC spokesman said the venture is intended to produce Australian expertise in the field of satellite communication design, development and manufacture. It will also have applications within OTC's normal business activities.

At present there is no Australian capacity for much of the technology being researched, such as the dish manufacture to extremely fine tolerances.

Banking by telephone

SYDNEY — Westpac Banking Corporation has launched an electronic banking service, Handyline, which allows customers to conduct routine banking transactions and access financial information services from their homes or offices.

A bank spokesman said Handyline can be operated from most touch tone telephones, a telephone with tone adapter, a Prestel videotex terminal, a personal computer with Prestel software, or a TV screen with Prestel adapter.

The bank offers three levels of service. Option one provides account balances and transaction services; option two offers the transaction services, a statement update and report of transactions plus Westpac information services; while the third option offers all options one and two plus business information.

The additional services offered through options two and three are available only through screens.

NT officials haggling with Telecom

By Peter Scott

DARWIN — The Northern Territory government has whittled down the list of potential suppliers for its communications network and is about to begin serious negotiations with its preferred provider, Telecom.

Telecom was one of four groups vying for the lucrative contract. The others involved were McConnell Dowell, Crooks Mitchell Peacock Stewart, and Icom Pty Ltd.

It is believed that the government used the competitive bids from other contenders to drive Telecom's tendered prices to rock bottom levels and gain potential multi-million dollar annual savings. A spokesman for the government said it was too early to discuss the Territory's plans.

"At this stage I can only say we have agreed to enter detailed negotiations with Telecom," the spokesman siad.

"We have to look at the details of Telecom's offer to decide exactly what we will take up."

The spokesman agreed, however, that the Northern Territory was almost certain to conclude some form of deal in the near future. "We will probably enter a contract within a few months," he said.

Overseas Outlook

LONDON — Users may see improved connectivity between Digital Equipment Corp's Decnet and networks based on IBM's Netbios before the end of this year, according to DEC's Charles Monk, product manager for the Vaxmate. Monk said the company may include Netbios in Version 2 of Decnet due for release in the third quarter. "It is not a certainty, but it is very possible," Monk noted. While users have been able to integrate Vaxmates and other Vax products into combined networks, the absence of a DEC Netbios interface in Decnet Dos limits the transparency of the network, particularly when running software that requires full compatibility.

RAWLEIGH, North Carolina — Hard on the heels of AT&T's announcement of integrated services digital network (ISDN) terminals and primary rate support for its System 85 PBX, competitors NEC America Inc and Northern Telecom have revealed ISDN plans of their own. Northern Telecom has developed Call Manager, a software package for the IBM PC that enables PC and phone to share an ISDN Basic Rate interface. An application being investigated is an ISDN voice encryption capability. NEC claims it has technical and production capabilities to provide commercial ISDN terminals in the fourth quarter of this year, with volume shipments in 1988. The company is also in the final stages of development of an ISDN module for the NEAX 2400 IMS private branch exchange, which could be used with the company's ISDN terminals.

WASHINGTON, — The Federal Communications Commission has proposed rule changes that will allow AT&T and other operators of overseas network facilities to determine freely the prices they charge resale carriers for international circuits. The FCC now sets the charges. While the proposal allows carriers to set the price of circuits subject to FCC review and approval, the FCC will still set the prices of the services supplied on those circuits.

EMSFORD, New York — A startup company has developed what it claims is the first commercial application for a processor based on Josephson junction technology, in which a chip is supercooled. The company, Hypres Inc, recently demonstrated its PSP-1000 Picosecond Signal Processor, which uses a liquid helium cooling system. The company claims the PSP-1000 has the potential to be used in communications systems operating at frequencies in the 50GHz to 1000GHz range, in ultrahigh resolution radar, and in supercomputing.

PHOENIX, Arizona — GTE Communications and divested Bell operating company Mountain Bell have begun what is reported to be the first US field trial of the integrated services digital network primary rate interface. The primary rate defines 23 64K-bits/sec channels plus one 64K-bits/sec or 16K-bits/sec D channel that carries signalling information. It was designed to link digital private branch exchanges, communications processors and other devices that perform high volume communications. The trial involves the transmission of digitised voice and data over a 13-mile fibre optic link. Other trials will be carried out to test ISDN networking over a digital adjunct switch attached to an ordinary analogue central office switch.

SANTA CLARA, California — 3Com Corp is developing technology to deliver IEEE 802.3 standard 10M-bits/sec Ethernet over unshielded twisted-pair wiring and plans to push it as an international standard. No standard yet exists for implementing 802.3 protocols over twisted-pair wire, but 3Com intends to submit design spcifications to the IEEE 802.3 standards committee for consideration.

Maxima manager maximises modern backbone network

LANE COVE, NSW — An integrated backbone network and communications resource manager has been designed and developed in Australia by Scitec Communication Systems Ltd.

The system, known as Maxima, is designed to optimise a large company's transmission and processing resources by giving the essential elements for building an integrated communications network which may combine voice, data, digitised video and facsimile transmissions.

A Scitec spokesman said Maxima reduced transmission costs by integrating synchronous and asynchronous data, and voice, into an intelligent backbone network using various transmission media and speeds.

It connects and switches data and voice traffic into one private network with unrestricted topology and is able to provide several "self-healing" features to ensure connections are maintained in a network failure.

Network management tools provided with Maxima allow communications managers at one or many nodes to monitor network performance and configure and control the entire network.

A multi-trunk networking multiplexer, based on time division techniques, with a variety of port interfaces, Maxima provides localised hardware control and distributed network control and monitoring. Any port can be switched to any other like port in the network.

"Distributed control ensures that the network is more robust and less expensive with no performance degradation as the network grows. Another processor is added with each new node," said the spokesman.

Maxima features up to 32 nodes per network and up to 16 trunks, each supporting up to 250 separate channels, or 512 ports per node. Its data throughput is 35M-bits/sec full duplex and 51 trunk speeds from 9600bits/sec to 2.048M-bits/sec are supported.

Map 3.0 tipped as a standard

FRAMINGHAM, Mass — The release of Manufacturing Automation Protocol version 3.0 this month is expected to provide a standard for centralised management of factory networks and to hasten development of mainstream network standards.

Specifications for the factory standard were submitted recently to a technical review committee for inclusion in Map 3.0 by the Map/Top Network Management Subcommittee. The specifications are an extension of standards work already completed by the International Standards Organisation (ISO) and the Institute of Electrical and Electronics Engineers.

A spokesman for the Corporation for Open Systems said the ISD was trying to do in about three years what took it eight years with File Transfer and Access Method.

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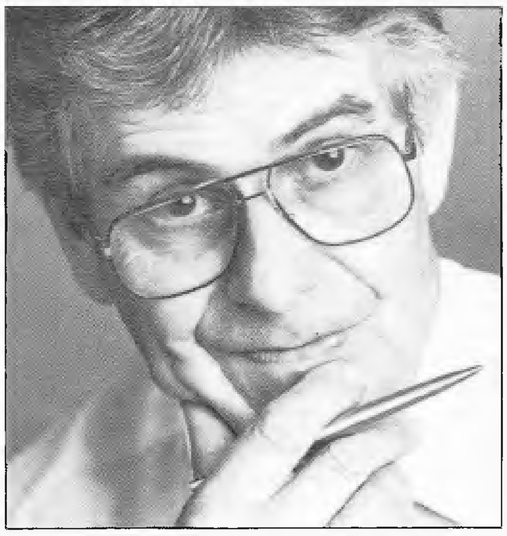

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New unified system joins wiring war

By Bob Wallace
CW International News Network

NASHVILLE, Tennesee — The cable wars have heated up with Northern Telecom's recent introduction of a twisted-pair/fibre-optic building wiring scheme that will compete with similar systems offered by IBM, AT&T and Digital Equipment Corp.

A spokesman for Northern Telecom said the Integrated Building Distribution Network (IBDN) is designed to support the company's own SL-1 and SL-100 private branch exchanges, as well as PABXs from other major vendors, including AT&T, Mitel, and Rolm Data equipment supported includes systems from IBM and Wang Laboratories.

Like competing cabling products, IBDN specifies the materials used and the way buildings can be wired to provide office outlets capable of supporting individual voice and data connections.

Unified wiring systems reduce the cost and complexity of installing or moving voice and data equipment by eliminating the need to pull cable when terminals are relocated.

IBDN specifies use of three or four pairs of nonshielded telephone-type wire, or fibre-optic cable, in the horizontal cable runs between central wire closets and individual offices. High-rise buildings typically have wiring closets on each floor. Twisted-pair wire or fibre is also specified for use in building risers, the vertical shafts used to interconnect wire closets on different floors.

The office outlet, the interface through which terminals connect to IBDN, specifies the use of separate modular telephone-type jacks for voice and data devices. For applications supporting clusters of terminals, multiple three- or four-pair cables can be routed to one location.

Twisted-pair wire in IBDN can support Northern Telecom Meridian SL-1 2.56M-bit/sec links up to a maximum distance of 600 metres.

The spokesman claimed a combination of twisted-pair wiring and baluns can be used to accommodate systems such as IBM System 370 mainframes at 2.35M-bit/sec, and IBM System/34, 36 and 38 minicomputers at 2.4M-bit/sec. It will also support Wang's VS/OIS at 4.2M-bit/sec. Fibre-optic cable can be used to support Ethernet systems operating at 10M-bit/sec.

Global kudos for Telecom tariffs

By Noel Bennett

NORTH SYDNEY — While Telecom was doing a good job with telephone charges compared with other nations, the carrier could adopt with advantage a more flexible and entrepreneurial approach to tariff structures, said Alan Ruff, manager, telecommunications division, NUS International Pty Ltd.

Such an approach would not only benefit Telecom, but also business houses, he said.

The company, which specialises in telecommunications and energy cost consultancy, has issued a study showing that charges for telephone and telex calls in Australia continue to compare favorably with nine other major trading nations.

From January 1986 until January 1987, Australia was the fourth least expensive nation for local calls, excepting New Zealand and Canada where such calls are free.

However, the survey notes that, again excepting New Zealand and Canada, Australia is the only country among the 10 surveyed where local call charges are time independent.

The survey also indicates that on trunk telephone calls up to 320km, Australia ranked third lowest with its charges, it came in second lowest on international telephone and telex calls and was third lowest in local telex call charges.

Ruff said suggested user incentives could include bulk discounts for line charges and equipment to the advantage of business houses, the market segment subsidising the rest of the users and which does not benefit from lower charges during different times of the day.

Telecom would also gain for such a practice would influence traffic flows and demands for equipment and so enable Telecom to use its resources better.

Ruff said Telecom should also adopt a user-pays policy where local calls would also be charged for the time taken by the calls.

NUS was concerned about the "abuse" factor.

Although Telecom claims some 66 per cent of local calls last for less than three minutes, some of those lasting for longer would be coming from personal computing users who could tie up a line and the associated exchange equipment almost indefinitely.

However, the Federal government has said it would not approve timed local calls.

Country	1986 tariff ($A)	1987 tariff ($A)	% Increase
Japan	15.269	14.969	−2
Belgium	14.558	14.558	0
Italy	13.447	13.657	+1.6
Germany	18.187	9.098	−50
France	11.262	7.330	−34.9
Canada	6.799	6.799	0
NZ	6.903	5.917	−14.3
US	5.630	5.630	0
Australia	5.400	5.400	0
UK	4.316	4.292	−0.6

Notes:
Prices at Jan 1 each year.
Based on exchange rate as at Feb 11.
All calls for three-minute duration.
Calls based on trans-Pacific or trans-Atlantic distance as appropriate for the country.

A brainstorm of new ideas

SYDNEY — A computer system designed to improve informal communications of "soft" information within organisations has been developed by the University of NSW in conjunction with Unisearch.

Soft information is described by Cyril Brookes (pictured), the university's Professor of Information Systems, as comprising ideas, explanations, comments, opinions, forecasts, requests for assistance, and gossip, which are a neglected area of computer-based support for managerial and office work.

Brookes said he believed the university's Office Express system had several advantages over conventional electronic mail, bulletin boards and computer conferencing.

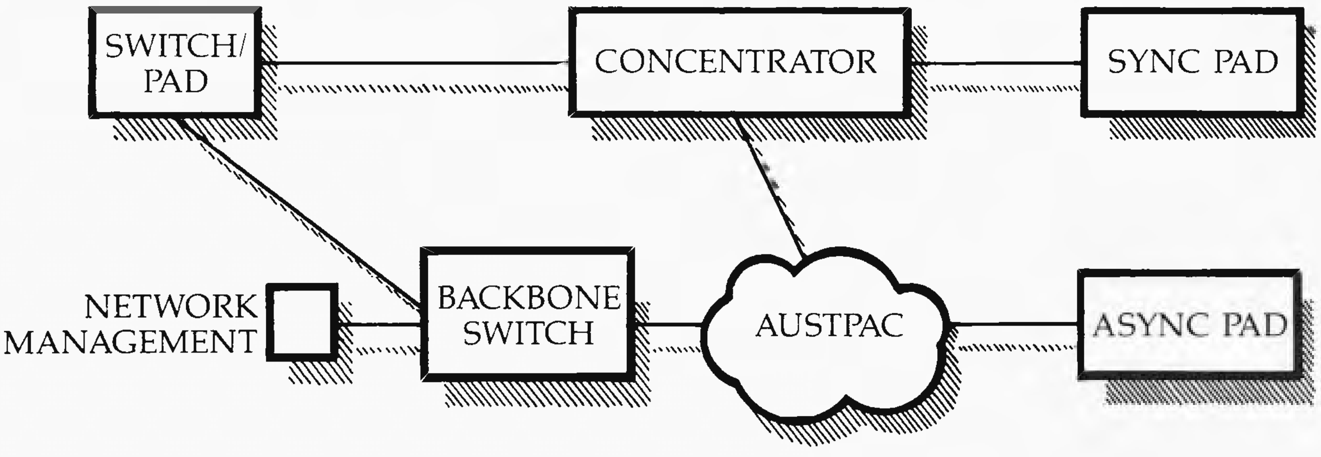
Developing over seven years, Office Express provides an opportunity for organisations to "accumulate and disseminate the wide range of 'intelligence' available from the network of employees, agents and customers," Brookes said.

At the heart of the system, which runs on DEC Vax computers but is expected to be ported to IBM systems by the third quarter of this year, is a topic structure based on a thesaurus format. "Broader terms are used at the lower levels of the thesaurus and these are linked to narrower terms at higher levels of the tree structure," Brookes explained.

A message priority system allows authors to indicate the degree of importance of their messages. This combines with the thesaurus topic structure to give a flexible message distribution procedure that avoids problems associated with local word usage and synonyms, Brookes claimed.

The system has been installed for evaluation at four commercial sites in Sydney, and also in Melbourne and Adelaide. Further information can be obtained from the university at PO Box 1, Kensington, NSW 2033. Tel: (02) 697 2222.

X.25 Packet Switching Products with Unparalleled Price/Performance



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Broadband cable combines simplicity and durability

By Noel Bennett

CHATWOOD, NSW — While the laser was a "curiosity" and on the back burner for many years before it was applied practically, broadband cable will not be a sleeper in Lan communications for long — if Joe Tokarczuk has his way.

Broadband can make communications "so simple" — the one cable highway carrying energy management and security information, data, public address, telephone traffic, cable television and video, intercoms and other applications.

So says Tokarczuk, general manager of recently formed Broadband Network Communications Pty Ltd.

Broadband cable is not starting from scratch; it has a long history, having been used in community access television networks in the US and Europe for some 30 years.

This bedding down of the technology and the subsequent setting of physical standards is one of the many reasons he believes it will displace twisted-pair cabling and even optic fibre in office buildings and factories.

Not that broadband adherents have been lacking in Australia. BHP's steelworks in Wollongong and the new Parliament House, Canberra, for example, have embraced the technology.

In buildings and factories, voluminous and diverse data and information flows are demanding high-capacity delivery systems and, at the same time, building and information systems managers are looking for simpler ways of connecting dissimilar devices on the one carrier system rather than a spaghetti mixture of restricted and far less flexible techniques.

On data capacity, Tokarczuk said it is technically possible for the one broadband cable to carry the equivalent of 30, two-way 5M-bits/sec collision detect channels, and users are finding that one or two channels are more than adequate.

In addition, technology is coming onstream to provide full 10M-bits/sec data channels, directly equivalent to existing baseband networks.

However, Tokarczuk also stresses that, besides this data traffic, the one broadband cable can simultaneously deliver other communications such as continuous voice and video.

As Tokarczuk views it, broadband cable is a delivery system with the same attributes of an electrical utility system.

That is, literally any device can be plugged into any wall socket and the device will work, providing of course, the cable has been appropriately configured. For example, if a television set is plugged in, the cable is in fact carrying television programs.

Accompanying this ability to accommodate numerous applications, Tokarczuk argued that management of the system is simplified with data networks being under software control and other services by frequency spectrum allocation.

For example, broadband supports a wide variety of proprietary networks such as RS-232C, RS-449/422, X.25, existing baseband networks via a bridge, IBM's Token-Ring Network standard with capacity to spare for other applications.

Tokarczuk said optic fibre — beholden to the laser — while it does offer very wide bandwidths, is comparatively limited at this stage in terms of easy connection to the cable and the variety of information carried over the cable. Distribution systems in buildings employing optic fibre generally end up with the same spaghetti arrangement as with twisted-pair systems.

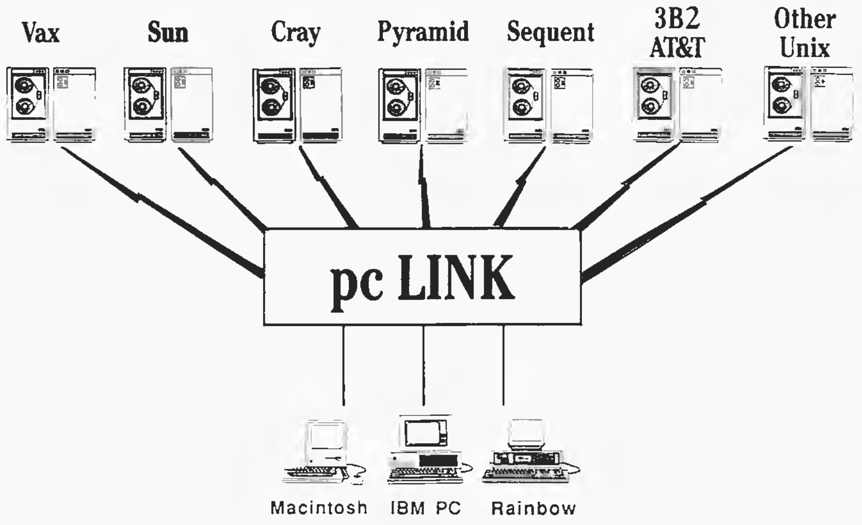
On the other hand, baseband networks are limited at present to about 4.5km, compared with the 60km for broadband, more in keeping with the requirements of high-rise buildings and large area manufacturing plants.

Indonesia likes Aust system

JAKARTA — Indonesia has shown interest in the Australian-developed Ericsson Digital AXE 104 rural telecommunications system.

Ericsson developed the system in conjunction with Telecom, and recently displayed the exchange at a Communications Indonesia exhibition where Ericsson's director of exports, Kevin Casey (pictured left) had talks with the Indonesian Minister of Communications, BJ Habibe (right).

The AXE 104, a major component of Ericsson's $A120 million pre-qualified offsets supplier agreement with the Federal government, has already been sold to Fiji.



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Users forcing standards for PC networks — Bass

By Peter Scott

SYDNEY — Vendors of personal computer networking products are being forced to adopt and adhere to international standards by an increasingly selective corporate user group.

Dr Charlie Bass, co-founder of Ungermann-Bass, said in Sydney last week that there was an analogy in PC networking now to the PC itself some years ago.

"As corporations bought PCs they soon realised at a very high level that they needed to standardise on a limited number of machines, and usually one of those was from IBM," Bass explained.

"The same thing is now happening with networking. Workgroups in large corporations are allowed to buy a PC network from a retailer — they are free to get whatever they want. But the corporation soon realises it can't tolerate a proliferation of islands of networks.

"The consolidation issue is occurring now, as it did in the PC industry, and is causing recognised networking standards to become even more important in the marketplace. That move is making the position of vendors marketing proprietary technology even more difficult to defend."

Bass said his company adopted international standards based on the lower layers of the International Standards Organisation reference model, and on three primary technologies sanctioned by the IEEE 802 subcommittee: 802.3 for carrier sense multiple access collision detection (Ethernet): 802.4 for token bus; and 802.5 for token ring.

Bass also suggested that IBM's Token Ring Lan will be "very significant and very successful". He said: "It is a good technology, it is an open standard, and it is available from a number of vendors. And above all it is IBM's preferred technology. Those factors are very important, particularly in office systems."

Bass was in Sydney to address an international symposium on ISDN. His subject was the impact of ISDN on local area networks.

Attack on NZ Telecom powers

CW International News Service

WELLINGTON, NZ — New Zealand's telecommunications users are up in arms over a proposed restructuring of Telecom, formerly the NZ Post Office. The telecommunications section of the State Enterprises Restructuring Bill has been criticised for defining crucial concepts too loosely and for giving Telecom too much control over the activities of private suppliers of equipment.

The Telecommunications Users' Association has claimed that some of the old rules restricting cross-connecting and onselling of leased line capacity would be replaced as soon as they were repealed if the bill became law. Other sections of the bill are claimed to restore Telecom's complete control over the commercial viability of on-premises equipment installed by private suppliers.

The criticisms follow numerous complaints that delays in installation of Telecom equipment to offices were being overcome by bribes of alcohol to Telecom workers.

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EDITORIAL

Troops mass for Telecom assault

THE WAR against Telecom's misuse of monopoly has taken a more aggressive tone over the past month. But if the troops are massing (see page 1), their efforts are not co-ordinated.

Atug, the Australian Telecommunications Users Group is undoubtedly delighted to see another army, in the form of the Information Industry Association, enter the fray. At the same time Atug wants to fight its own battle.

It is a typical case of us and them — on the one side the users, and on the other the industry. Whether they will fight better battles by remaining apart remains to be seen.

At this stage the most important thing of all is that a second force is committed to the fray. And it is an experienced force, accustomed to lobbying government with all the clout it can muster from its membership's multi-billion dollar revenue base.

The AIIA comes to battle with a strong view of what is wrong with Telecom now, and a clear vision of how those wrongs can be righted.

It points out that operational and administrative changes made in 1975 gave Telecom policy making power which arises within Telecom because of power to make bylaws for the establishment, maintenance, generation and provision of telecommunications services and facilities.

The AIIA correctly points out that the current troubles arise because Telecom uses it bylaw making powers "as a vehicle to assume a strategic policymaking role," a role which the association believes should rest with government.

Under the current system Telecom is "both the umpire and a player. It sets the rules of competition in the market, more often than not to its own distinct advantage".

The association points out that throughout OECD countries it is recognised that changes in the regulatory framework of telecommunications and the status of the dominant supplier are unavoidable.

The AIIA's calls for an independent regulatory agency has the backing of Atug and it is not the only common ground between the two bodies. So while it may be acceptable for them to remain aloof at present, a concerted approach may be more beneficial in the future.

The common goal is the destruction of a debilitating monopoly. If that goal can best be achieved by a union between users and industry, then such a union should be given careful consideration and not thwarted by perceived ideological differences between allies.

Comms consultants are not miracle workers

FEW things boil the blood of communications managers faster than an upper management suggestion to bring in an outside consultant to study communications cost reduction.

Most managers regard consultants as intrusive, hostile forces. The manager and his staff are, after all, charged with the research, implementation and efficient operation of the communications function.

But even established communications departments can benefit from outside consultants. A consultant can be instrumental when the organisation needs to perform an especially large and difficult task, such as a review of communications patterns, which would take months of focused activity.

▶TELETOONS — By Phil Frank

Good morning, Mr. Finley.... I'm the company's new Phone Bill Auditor. Let's go back to November 9, 1967, shall we?
Phil Frank

Similarly, consultants may fit the bill for organisations that have little time to study and implement a new technology that exceeds the existing staff's depth of experience or technical familiarity.

Anxiety bubbles up, however, when senior management entertains the notion that a consultant might be helpful in reviewing the overall communications operation. This naturally raises territorial instincts. To the communications manager, it appears to be an audit conducted by outsiders designed to point out damaging shortcomings of the current operation.

In fact, more often than not, consultants sell senior management by promising massive cost savings. Consultants typically toss around astonomical sums — $250,000 or $500,000 — that they estimate their work has saved former clients. The decision makers instinctively rise to that bait like hungry freshwater trout. Making a small but critical inductive leap, management naturally wonders what miracles these experts might work within their own corporations.

At this crucial juncture, the organisation must involve the opinion of the communications manager. He alone knows his operation's strengths and weaknesses, its cost-savings opportunities and its strategic and tactical directions. If the communications department is shut out of the decision-making process, senior management will be creating a combustible combination: a consultant's services dumped into the lap of an unwilling and hostile communications department.

Among the toughest tasks for a communications manager is the dispassionate evaluation of the question: "Do we need a consultant?" If the manager denies that such services are needed, he will be accused of being too sensitive about his turf. On the other hand, if the manager is overjoyed about bringing in a consultant, it will seem he is admitting the operation is in some kind of bind.

To find a sensible middle course that avoids these perceptions, the manager needs to stay objective in probing the specific needs of his organisation.

Once a need is determined, the communications manager must insist on questioning not only what a consultant's role will be but also whether this particular consultant is best for the job. The manager needs to establish himself as an important evaluator of the consultant's competence and potential usefulness. This means investigating the consultant's client background and finding out about the so-called savings.

Through this diligent research, the communications manager will be providing the organisation with the facts it really needs to evaluate whether it can use outside help. For the good of the overall operation, the manager must transform himself into a consultant on consultants.

COMMUNICATIONS WORLD

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A PUBLICATION OF COMPUTERWORLD

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IBM, undisputed leader in the computer industry, last month reached a crescendo in its year-long bombardment of communications product and strategy announcements. A shell-shocked industry trying desperately to keep up is now filled with startled analysts and baffled users. RICHARD BUCKLE, who was in the US when the announcements were made, believes his travels — plus some IBM internal documents — have helped to sharpen his perception of what the giant company is planning.

Why Big Blue lost the middle ground

IT WAS Charles Lecht who first drew attention to waves of change within the computer industry. Unfortunately, he failed to follow the concept right through to the 1980s, where we can now observe another major wave of change.

Data processing is very unstable. There are too many options, and in isolation none will work.

Also, IBM has lost far more ground — especially in the middle range — than I had perceived from Australia. I cannot see them winning it all back because first, Digital Equipment Corp has done a superb job, and second, other vendors and some users have shown you can find other solutions without upsetting the data centre. That has opened the eyes of a lot of True Blue accounts.

A third element making IBM's struggle more difficult is the company's implementation of early retirement plans in an effort to cut back on staff. That has worked against IBM, which is losing large numbers of gifted people.

All three factors, however, make it almost impossible for IBM to win back the middle ground, even though the 9370 Vax-crusher will help. Be assured that IBM is keenly aware of the problems — so aware that its US salesmen have been offered incentive bonuses to win competitive bids against DEC.

DEC is clearly the danger, and has done a lot better than anyone had imagined it could. Is this the next wave, with a two-year ride up and down?

> ‘ *We believe in the ‘IBM standard,’ but the message I was getting from my people was that it was getting a little harder to know exactly what that standard is.* ’
>
> **— Sydney McMorran of the Toronto-Dominion Bank quoted in IBM's *Think*.**

DEC has done a wonderful job by addressing what has to be done in the commercial sense. It still misses network management, but it has opened all eyes to a new group of people that are emerging — the applications builders.

This is showing up in a number of ways in a number of countries. As an example of how it is not just a US phenomenon, the Europeans' strengths in applications are starting to re-emerge. People looking after the users are winning, but IBM is just not offering enough solutions.

Of course IBM does not just give up and walk away, and some of the keys to its approach are emerging. IBM has been announcing strategic products that are indicative of its future. Users should consider carefully IBM's Enhanced Connectivity Facility (ECF), Distributed Data Management (DDM) and Systems Application Architecture (SAA). They are all vital.

However, even though these names are starting to surface, they are not all pulling in the same direction. There is discord even within IBM. The company's people do not have a clear picture of the future. Management is too busy reacting to DEC and its success. In fact, it has been estimated that 80 per cent of IBM's management is focusing purely on how to react to DEC.

Unfortunately, the keys to IBM's future seem to be architectural concepts which develop in 10-year time frames. Consequently, IBM will be energetically touting the benefits of the concepts, but will be short on products. That leaves the door open for others, because there is a need for people to pull it all together.

It opens opportunities to applications, to products, concepts, bridges and gateways.

The whole IBM approach will allow people to play complex games with connectivity. It will be up to comms people to bring it all together.

The industry is unstable and there are no clear international solutions. We must rely on people with a knowledge of the communications world, because individual suppliers cannot provide the whole solution.

Unfortunately, in this troubled DP world the user is now forced to make compromises while IBM tries to make complexity invisible.

● *Richard Buckle, former Systems Technology managing director, is now with the parent company, Netlink Inc. in the US*

Richard Buckle . . . industry unstable.

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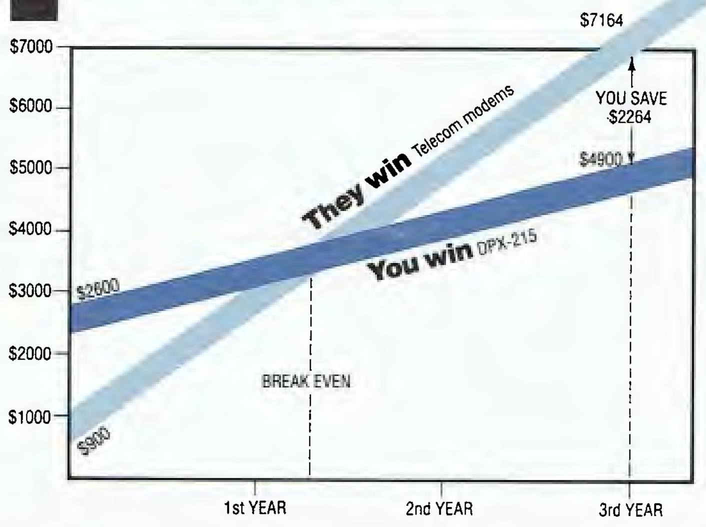

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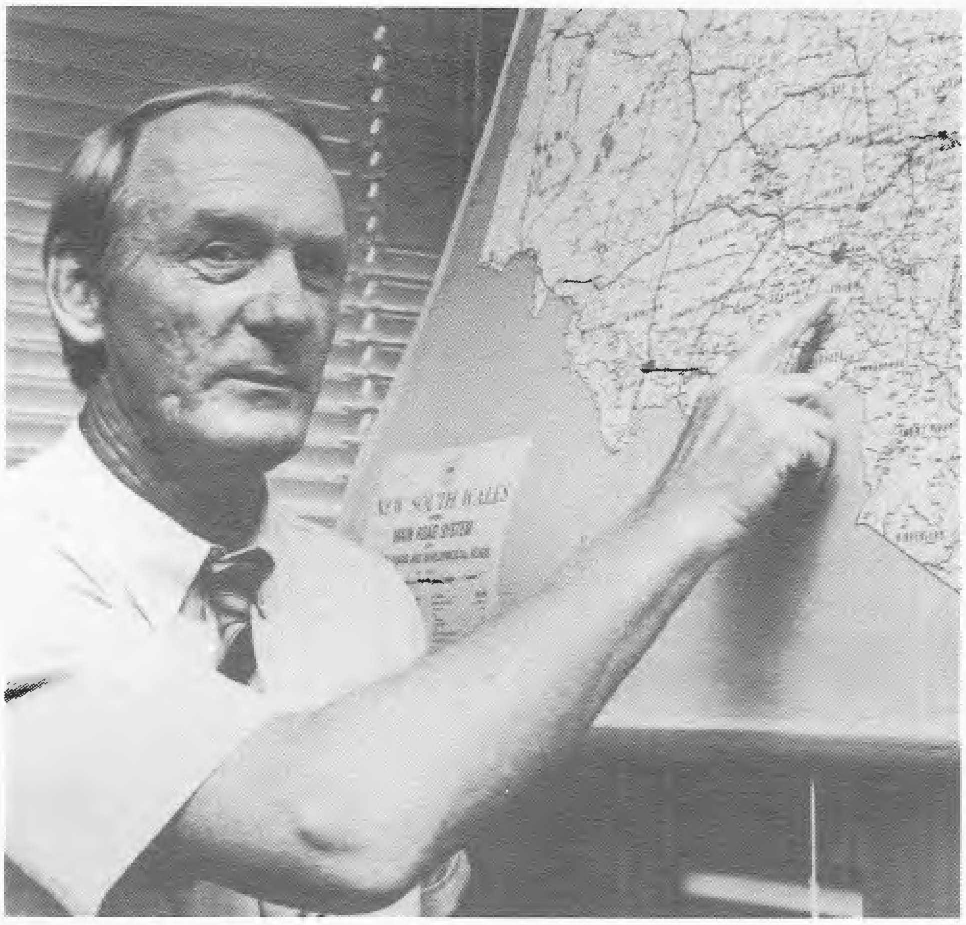
Noel Bennett learns how a roads department is decentralising

DMR takes the road to 'small is beautiful'



Lance Fredericks foresees a happier, more productive workforce.

GOVERNMENTS and private enterprise face increasing pressure to make their dollars work harder by providing ways in which people can "work smarter".

Besides eliminating obvious waste, efficiencies can be achieved by adopting the "small is beautiful" approach, streamlining head office operations and giving more responsibilities to field staff.

This in turn implies a decentralisation of computing power, a path being cautiously explored by the NSW Department of Main Roads. It is reviewing its organisational and information systems strategy, with the most likely result being larger divisional offices and a smaller head office.

Lance Fredericks, assistant to the chief accountant, put the department's broad position recently. "There is now an underlying trend for the regional offices to take on more functions and responsibilities presently carried out in head office."

The department has almost 1600 staff working in Sydney and 6250 in the field, including outdoor staff, spread among 17 regions throughout the State — some in the Sydney metropolitan area and nearby centres such as Wollongong and Newcastle, but many others in more remote areas.

The department has a comparatively long history in computing. Its first machine, a Honeywell was installed in 1968. Head office computers now comprise a Sperry (or Unisys) triprocessor 11/73, the third element of which was just installed, and a Cyber 850A installed last July — latest successor to the first Cyber machine, installed in 1976.

The Unisys machine processes administrative tasks such as payroll, stores accounting, general accounts and reporting, contract hauling payments and violations of load regulations. The Cyber runs engineering and technical applications, the major one covering road design, using the Moss surface modelling application package from the UK.

The declaration of computing pursued by the department is not being implemented without some prior experience. Although primitive in terms of today's technology and not in the true sense decentralisation, the department has been using a telex network linking works offices, which report to divisional offices, since 1971.

These 40 works offices manage the outdoors staff and are responsible for roads construction and maintenance. The offices send telexes to the Unisys machine, fronted by a multiline telex transfer device from JN Almgren.

The telex messages are batched onto paper tape in works offices. At the end of the day they are polled, the messages processed by the Unisys machine and replies forwarded by telex overnight or, if bulky, mailed.

Remote usage of the Cyber by works offices is far more advanced in telecommunications. Since 1985 the department has progressively moved to Telecom's Digital Data Service (DDS) to connect non-metropolitan divisional offices with the Cyber. The metropolitan offices use Datel.

The DDS lines, most carrying traffic at 4800 bits/sec and the remainder, 9600 bits/sec, allow staff to tap the processing power of and access files on the central machines through Tektronix 4109 graphics terminals, in turn driving a mix of Hewlett-Packard and Calcomp plotters.

According to Fredericks, DDS will be the backbone of future decentralisation developments, as charges are distance independent and Netplexing will allow further reduction of transmission charges.

A project team is examining options for how best to move administrative processing as much as possible out to works offices.

This move to decentralised and online processing will reduce the load on the central computer and slow down pressures for its enhancement. Questions to be determined are whether each works office should have its own departmental machine supporting six to 20 terminals, or whether processing power should be located in a regional office, with works offices feeding off that machine.

Savings in hardware costs could be made by adopting the regional approach, but it may also require more specialist staff.

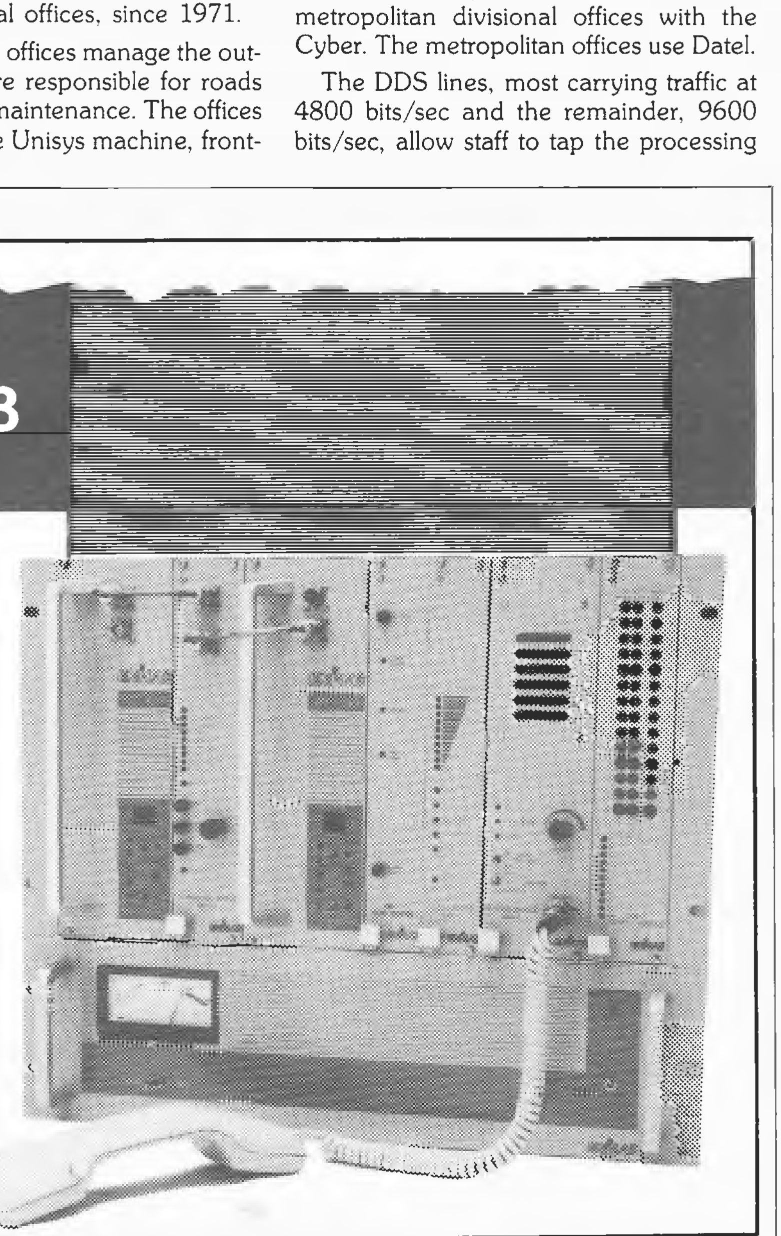
Further, the divisional approach, where one line would carry both adminstrative and engineering data to Sydney, would require switching arrangements — a private data branch exchange — to divert traffic into the appropriate computer.

Also, the Cyber machine must be able to communicate with the Unisys mainframe as information requests might require use of databases on both machines. This switch would handle electronic mail, say, between field offices.

On the divisional office side, the department is trialling Apollo equipment to provide local processing power so that the Cyber will be used just for archival storage purposes. However, the mainframe would continue to support smaller offices which could not justify their own processing power.

Apart from wide area communications, the department has installed a Sperry-supplied local area network spread over three nearby locations in head office and linked to the Unisys via a gateway.

According to Fredericks, the end result of this whole process should be the slimming of management numbers in head office with a corresponding devolution of responsibility out to the offices and a happier and more productive field force.



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INTEGRATED service digital networks hold a lot of promise for communications managers. But that promise is elusive. It is first necessary to find out when Telecom will make it possible in Australia — will it be 1988 or 1989? — and then to discover the real benefits. Doane Perry examines implementation of the technology in other parts of the world and gives some hints to would-be Australian users.

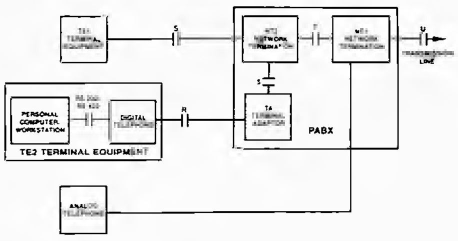
ISDN no panacea for standards ills

ISDN is an international standard, but is far from universal in its implementation. The only real users so far are in Europe and Japan, which both lead even the technological might of the US. Australia is treading very softly on the path to ISDN, thus holding out the hope that potential Australian users will have a full understanding of the technology and its benefits by the time the promised service becomes reality. At this early stage would-be users are asking two leading questions. First, for which purpose will ISDN be more important: reducing operating costs by providing cheaper bandwidth, or supporting applications that improve worker productivity? Second, will ISDN's standard interfaces lead to multivendor compatibility? Some guidance may be found in the attitudes of European users, which were tested in a study of 50 large businesses conducted by IDC Europa last year. The study found that the chief European motivation for implementing ISDN is cheaper bandwidth for large businesses.

European users expect that ISDN will achieve less expensive data transmission by enabling the Post Telegraph and Telephone Administration's smaller, more expensive data systems to partake of the economies of scale inherent in their larger voice systems. Therefore, the key to ISDN's use in Europe is pricing, or tariffs.

The most application-driven European business sectors, chemicals and energy, are trying to find application-based rationales for ISDN. The most promising applications are in combining different media types. For example, integrating telephone activity with computer database access could improve sales efficiency through more rapid telemarketing, order taking and credit collection. Another promising ISDN application is logistics improvement, in which systems like electronic data interchange automatically transfer information to locations that need it.

ISDN REFERENCE MODEL



The shape of ISDN in Japan indicates that multivendor incompatibility will still be a problem. Japan seems to be creating a proprietary ISDN that does not conform with international standards.

Despite these problems, Japan may succeed in developing a broad-based residential and small business ISDN that will create demand for mass-market ISDN consumer devices.

In the US ISDN is a telephony-oriented, vendor-driven system that serves as a strategic weapon for AT&T and the regional Bell holding companies. AT&T will use ISDN to circle the IBM MIS fort with an army of Digital Multiplex Interface licensed third-party vendors. And with added network intelligence, they can replace some data communications hardware and pick up Systems Network Architecture and other traffic that now goes over private networks.

ISDN is no panacea for standards problems. Basic ISDN gear designed to take advantage of cheaper bandwidths will interoperate with most vendors' equipment, but truly useful, application-driven ISDNs with vertical market software will be proprietary. That means users will have to be especially careful about which vendor they buy from.

- *Doane Perry is a senior telecommunications consultant for IDC Research.*

NEW CHALLENGES FOR MANAGERS

THE introduction of the Integrated Services Digital Network protocol into the market will offer communications managers new challenges for network design and implementation. By merging communication nets, ISDN will eliminate facility duplication, make more efficient use of remaining resources, simplify and automate communications tasks and provide a new set of capabilities.

But ISDN cannot become a reality without equipment that allows users to connect to the ISDN network.

A successful supplier will be prepared to meet initial ISDN user demand and anticipate future market demands and requirements.

Because of the nature of ISDN, equipment suppliers will need to understand both telephony and data communications technologies.

Users will need to develop a methodology for evaluating ISDN that includes:

- ■ *A review of existing and future network needs.*
- ■ *Identification of areas within the network where ISDN may be implemented.*
- ■ *A return-on-investment analysis.*
- ■ *A plan to implement the results of the above.*

Users will need to apply this established process to a new technology with little precedence. The supplier can simplify that process by acting as a prime information source. Suppliers can also provide expense and savings information for the return-on-investment calculations.

The final decision to implement ISDN will ultimately be made by the user. However, the supplier's foundation of ISDN knowledge will be a valuable resource for users as they evaluate ISDN and begin to address network planning and migration issues.

SPECIAL FEATURES
Appearing in future issues of Communications World.

MAY: Micro-mainframe Links
PLUS Computer Graphics — communicating the message when the message is an image!

JUNE: Data Concentration and Protocol Conversion
PLUS Fibre Optics — Technology & Utilisation

JULY: Satellite Communications and Equipment

AUGUST: Network Management — the factors of control, diagnostics and personnel

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(* For editorial submissions contact Peter Scott, Editor, on (02) 439 5133)

COMMUNICATIONS WORLD
Covering Data, Voice & Image Communications
Published by Computerworld Pty Ltd, 37-43 Alexander St. Crows Nest 2065

Welcome to Atug'87

Chance to see the latest

MANY of us have the benefit of using modern technology in communicating, but how many of us do anything about it? Now is your chance to see the very latest equipment and services available in the world today at Australia's only telecommunications exhibition.

Irrespective of where you are located — Perth, Darwin, Cairns or Hobart — the cost of an airfare will put you on the right course of greater efficiency. Make sure you and your senior management attend the 4th National Conference at the same time.

The developments that have taken place over the past five years are mind-boggling. That's why the Atug exhibition is one of the most successful exhibitions held in Australia.

Millions of dollars worth of hi-tech equipment has been sold off the floor at each exhibition by people who spend money to make money.

See for yourself, accept our free business invitation to attend. The three days the exhibition is open are important to you. They are the three days in the year you can see it all at the one time and under the one roof.

Trevor Riddell
Managing Director
Riddell Exhibition Promotions Pty Ltd

'Telecommunications means business' is theme

National telecommunications conference and exhibition Hilton International, Sydney — April 7-9, 1987.

THE fourth annual Telecommunications Conference and Exhibition, sponsored by the Australian Telecommunications Users Group, is now showing the maturity gained by its organisers who have put together a very topical, interesting and educational program.

By far the largest event of its kind conducted in Australasia, it has steadily gained credibility over four years as the major forum for unbiased discussion of the telecommunications issues and technologies of the day. Atug expects attendance by some 500 delegates and there are some 45 exhibition stands.

Minister for Communications Michael Duffy will deliver the opening address for Atug '87, the theme of which is Telecommunications means business.

Following that theme, John Gough, chief executive of Dunlop Pacific and vice-president of the Business Council of Australia will provide the keynote, making the point that, if the boardroom ignores telecommunications and its obvious benefits for better business, it does so at its own peril.

Telecommunications can be a resource for senior executives

The first day is designed for those already using telecommunications, but it also seeks to inform senior executives of the possibilities of using telecommunications to save money and as a source of profit through enlightened corporate planning.

All the speakers on this first day — Australian and international — are very senior executives themselves. They will relate their own knowledge and experience to the view that communications is a resource. The facility is provided to attend only on this day.

Exploiting the convergent technologies

As computer and communications technologies converge and the ISDN era arrives, it is essential that the effects of these events are closely understood.

In two streams, technical and non-technical, sessions look into the future so that one might understand and make the most of ISDN. The sessions will answer questions like: Which technology should one use? How will you actually implement it? What else is new? What is the future for networking? How does the technology affect your building and office? And what of the future for value added services?

These perceptions of the future will be given by speakers representing suppliers, users, consultants and the carriers, Telecom, OTC and Aussat, thus providing a good balance and getting well into the technical aspects for those who wish to.

Getting it right

The third day should pull the strings together as it looks at telecommunications management and planning and some of the more technical aspects of regulation.

Having heard all or most of the possibilities, what does one then do? The final morning session attempts to answer that question.

The great debate — regulation

Lastly, a debate is planned on the subject: Regulation through the public sector is better for business.

This important subject is in need of an airing of both sides of the argument and it is hoped it will be a session which is both entertaining and enlightening.

Workshops

For those who want to expand their knowledge gained through the conference sessions, learning workshops are planned so delegates can have free exchange of information with the experts who gave the presentations. These will be small groups of about 30 and subjects covered will be networking, telecommunications planning, ISDN and cellular radio.

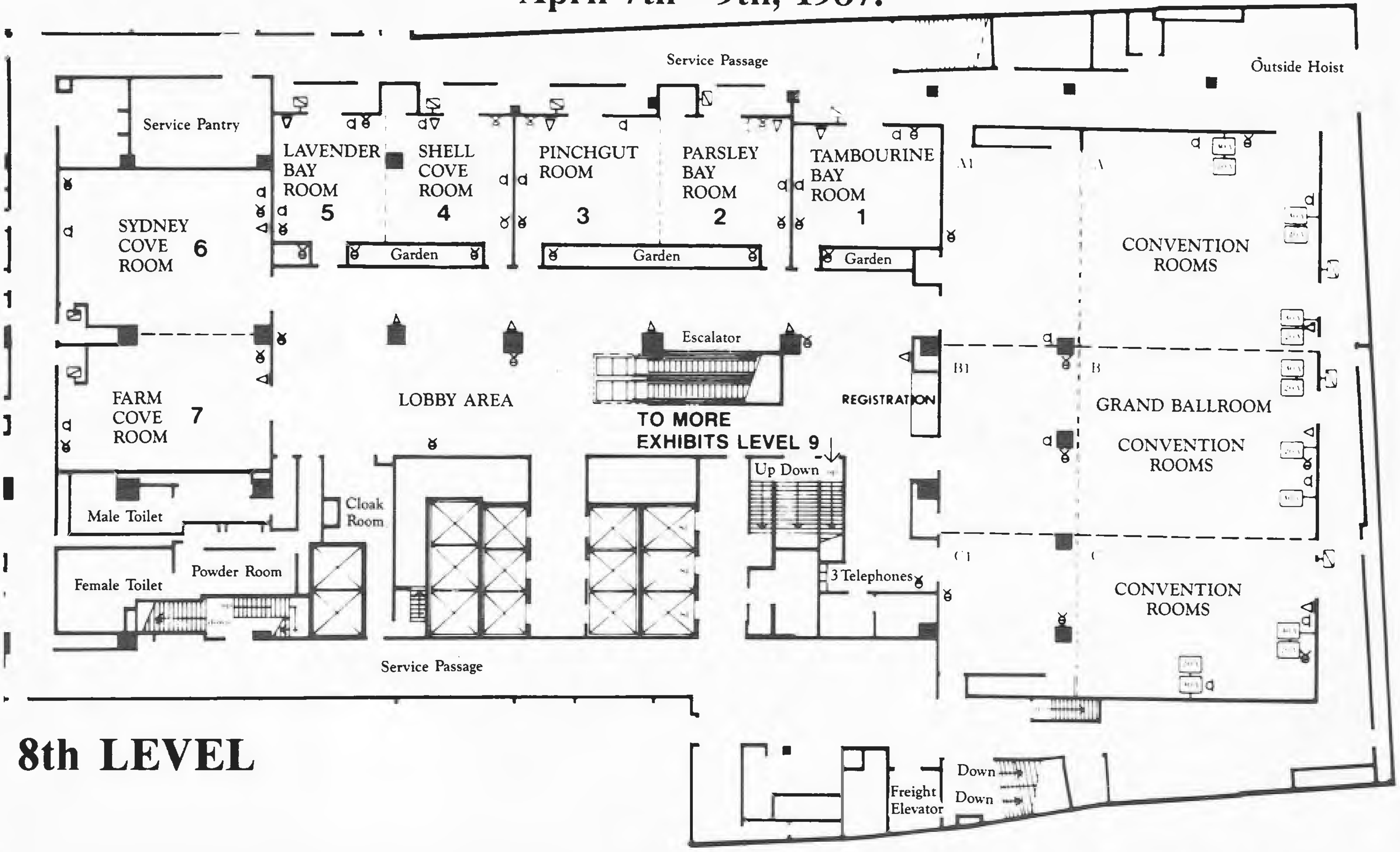
Possibly one of the greatest values of the Atug conferences is the fact that they bring together most of the people in the industry. Delegates will meet telecommunications users large and small, consultants, suppliers and representatives of the three carriers. There can be almost no problem or type of project that someone there has not experienced and that can be shared with others.

If you use telecommunications in business Atug '87 really is a must.

Wally Rothwell
Executive Director
Australian Telecommunications Users Group

FLOOR PLAN

4th Australian Telecommunications Exhibition and Conference
Hilton International Hotel, Sydney, N.S.W., Australia.
April 7th - 9th, 1987.



8th LEVEL

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Exhibitors list for Atug '87

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Artel Computer Pty Ltd	13A
Aussat Pty Ltd	15, 16
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British Telecom	28
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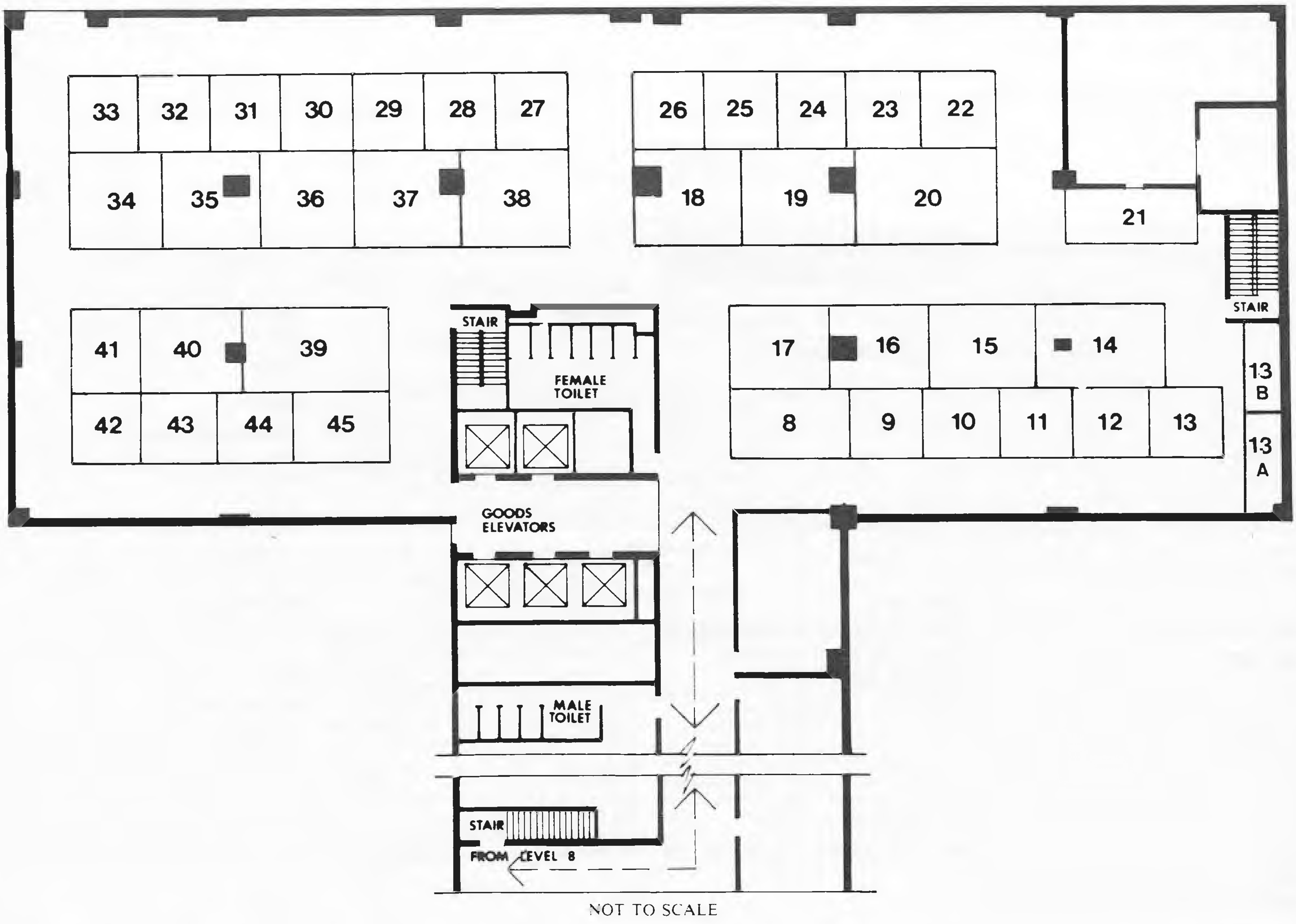
The Telephone Supply Co Pty Ltd	17
Trippett Lane	13
Tytel Pty Ltd	20
Unisys	14

Atug'87

Atug'87 FLOOR PLAN 9th LEVEL



Can you afford not to attend Atug'87?

OUR THEME is Telecommunications means business and anyone involved with business telecommunications will not only gain valuable insight into new opportunities opening up through telecommunications from the varied presentations, but will also be able to share problems, ideas and innovations with others in similar situations.

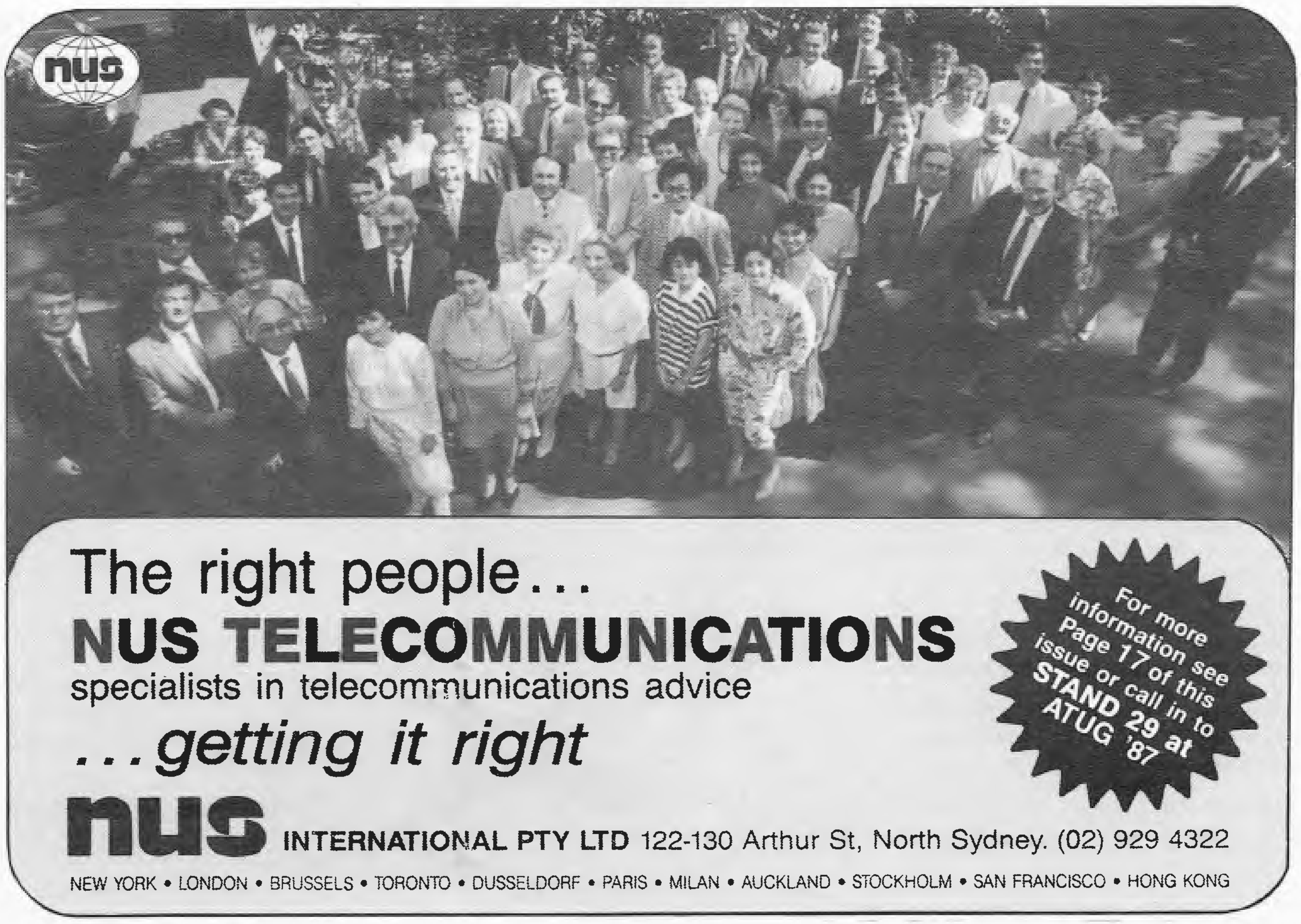
The conference will be very valuable to those new to the field and is, of course, essential to those who are totally involved.

This year the conference is structured so that on the first day senior executives can update themselves with the value that telecommunications can add to business. Those people may like to attend on that day only, and the facility to do so is provided.

But the conference is structured so that the opportunities shown on the first day are given credibility on the second, in a day of How To for both the technical and non-technically minded.

Day three pulls it all together with suggestions for corporate action.

Can you afford not to be there?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For more information see Page 17 of this issue or call in to STAND 29 at ATUG '87

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SHOWCASE

AAP Reuters Communications Pty Ltd
Stands 44, 45

30 Ross Street, Glebe, NSW 2037
Tel: (02) 692 1000

AAP operates nationwide satellite networks and, as a result, is able to assist in the evaluation and implementation of private satellite networks suitable for voice and data exchange, video and sound distribution, video conferencing and other applications. Additionally, AAP has developed in Australia the use of microwave distribution services for data broadcast, video and entertainment uses. Voice messaging is another area in which it is active.

Altacom Pty Ltd
Stand 11

7-9 George Street, Artarmon, NSW 2064
Tel: (02) 427 0955

ALTACOM is exhibiting the following new products at Atug: Auscom 1000 building communications system able to accommodate up to 37 different user groups; Altastar integrated voice/data mobile radio system providing supervisory control and data retrieval from field mobiles; Tact Model TA-7 telephone access control terminal interconnecting a two-way radio base station or repeater to public switched telephone network; Mastercall Model MC-4044 telephone call diverter capable of transferring incoming calls on either line to any programmable number; and VLink Model 241 keyboard modem accessing Telecom's Viatel service or private videotex databases using standard telephone lines and either a TV set, composite monitor or RGB color monitor.

Artel Computer Pty Ltd
Stand 13A

25 Eram Rd, Box Hill North, Vic 3129
Tel: (03) 898 2509

ARTEL has a range of software products designed for network management within the IBM PC family. Programs on display include PPTCalc for calculating charges and installation costs of Telecom and Aussat leased-line services. Other exhibits are Matrix, a simple program for evaluating a matrix of inter-exchange distances in accordance with Telecom's great circle algorithm, and Multinet for working out the annual costs involved in a range of Telecom multiple point networks.

Aussat Pty Ltd
Stands 15, 16

GPO Box 1512, Sydney, NSW 2001
Tel: (02) 238 7800

SINCE its establishment as a commercial company in 1981, Aussat has developed its first generation satellites, contracted their manufacture and successfully launched and brought into operation two of three first generation satellites. The third satellite is scheduled for launching this year. Aussat has also completed the construction, equipping and commissioning of satellite control facilities in Sydney and Perth, together with an extensive network of satellite communication earth stations in capital cities. Planning for the design and development of Aussat's second generation satellites is now underway.

Australian Tel-Tec Pty Ltd
Stand 27

4th Floor, 98 Albert Rd, Sth Melbourne, Vic 3205. Tel: (03) 699 8898

ONE of the highlights of the Tel-Tec stand is the Quick Connect Panel (QCP), a rapid connect cable termination system from ADC Telecommunications Inc. The QCP is designed for cross connecting telecommunication circuits with the allowance of unlimited design layouts. Other new products include ADC's Fibre Storage Panel, which provides an organised method to store, protect and manage excess fibre optic jumpers and pigtails, as well as the Fibre Distribution Panel for interconnecting outside plant fibre optic cables with telephone exchange fibre optic equipment.

British Telecom
Stand 28

5th Floor, 255 George St, Sydney 2000
Tel: (02) 251 3817

Sharon Moscardra, a market support representative with Delairco Business Equipment, demonstrates the FX830 laser facsimile machine which will be on display at Atug'87.

BRITISH Telecom, the world's fourth largest PTT, purchased a controlling share in Mitel Telecommunications in 1986. The acquisition brings with it Mitel's experience in engineering. In Australia, British Telecom has formed a wholly owned subsidiary company, Teletrade Service Pty, which will be used to market Mitel's PABX systems including the SX50 digital unit designed for the small to medium markets. Other British Telecom equipment, such as the popular City Business System, will also be available.

Combined Communications Consultants
Stand 23

4 Collett Pde, North Parramatta, NSW 2151. Tel: (02) 630 5627

COMBINED offers business the necessary expertise to set up a successful communications operation. Services include establishing a communications corporate strategy, implementing this strategy and setting up a cost-effective purchase base. Combined also claims to save clients' money by securing, on their behalf, purchases at a price not normally available to a one or two-system user. Advice on the correct hardware and software needed for running efficient communications is also available.

Also sharing stand 23 are two other communications specialists, PABX Advisory Services and Johns Telecommunications Consultants. PABX Advisory offers independent advice in the selection, purchase and commissioning of modern telecommunications systems or networks. Services offered include project construction, project management and communications.

Johns Telecommunications specialises in telecommunications reviews and planning, specification of equipment including PABX, radio paging, fax, voice/data integration, queuing systems and handsets as well as tender evaluation and system installation management. Principal consultant Tom Johns has 20 years experience in telecommunications including 15 years with Telecom.

Datacraft Australia Pty Ltd
Stand 38

PO Box 353, Croydon, Vic 3136
Tel: (03) 727 9111

DATACRAFT has a number of new products on show including the Instanet 6000 series 20 data PABX and the MB3 enhanced wideband multiplexer. Datacraft is a comprehensive data communication systems supplier and offers a consulting service targeted at the integration of comprehensive network facilities, incorporating anything from line drivers to 2000 packet per second X.25 nodal processors.

Datamatic Pty Ltd
Stand 24

9 Byfield Rd, North Ryde, NSW 2122
Tel: (02) 888 1788

PRODUCT and system supplier Datamatic is displaying a range of communications equipment including General Datacom's wideband wide area networking, advanced network management systems including the Megamux II networking switch. Also on show are dataline testers, protocol testers, data PABX, fibre optics Lan, token ring Lan and Wan.

Dataplex Pty Ltd
Stand 34

28 John St, Lilydale, Vic 3140
Tel: (03) 735 3333

DATAPLEX is debuting a number of new distribution products, most notably Adalink which allows remotely located type A 327X terminals to connect to a controller using dial-up or leased telephone lines. Other products include modems and multiplexers for use on private wiring and on Telecom's Analogue Data Service as well as a display of equipment for use on local exchange bypass applications and for dial-up entry and data PABX.

Datatran Systems Pty Ltd
Stand 34

2-4 Jesmond Rd, Croydon, Vic 3136
Tel: (03) 725 6677

NEW products due for release from Datatran include the Datatran 9000 series of matrix switches, V35 and X21 patch monitors and switch equipment as well as the QNet port selectors and the Luxcom optic data distribution systems. Other communications and computer network equipment marketed by Datatran are wire management and building cabling systems, protocol converters and multiplexers for IBM systems, dial-up security devices and remote monitoring and switching systems.

Delairco Communications Pty Ltd
Stand 7

55 Clarence Street, Sydney, NSW 2000
Tel: (02) 290 1866

A new range of Ricoh facsimile machines is being introduced by Delairco at Atug. In addition to this equipment, Delairco is demonstrating its full list of business machines including the FX 830 Laser Facsimile Transceiver and the FX2100 fax. Ricoh markets a range of fax transceivers, high speed (group III) and special purpose fax installations such as Securefax and Asynchronous Digital Facsimile.

East Coast Telephone Co
Stand 35

502 Miller St, Cammeray, NSW 2062.
Tel: (02) 923 2911

EAST Coast specialises in telephone handsets for business. The company also provides service, training, maintenance and cabling. Included in equipment displayed at Atug '87 is the Dallas Delta Corp's four and two-line handsets, the Tytel range of general office

GONE TO LUNCH!

VOX
VOICE OUTPUT EXCHANGE

When Mr. Bell invented the t

Human beings. He forgot that they eat lunch, go to the bathroom, attend meetings, visit clients and sometimes even knock off at 5.30. That's why only 25% of first phone calls actually connect. That first connection which could be vital to the ongoing efficiency of your business.

Honeywell VOX takes up where Mr. Bell left off. It turns that sorry 25% or 1 in 4 hit ratio into a slick 100%, using nothing more than the buttons on the telephone. And like the telephone before it, it's totally revolutionising office communications throughout the business world.

Honeywell ensures that even when employees are out of the office they can receive and respond to that vital first call. Instead of the standard "please call back", they get a complete message, up to five minutes long, in the caller's own voice.

Non simultaneous messages can be sent, received.

PABX compatible handsets, the Soundesign James Hardie handsets (a high-quality PABX telephone) and the Nova-Tel car telephone featuring cellular network system.

Equatorial Satellite Systems Aust Stand 42

Level 24, 31 Market St, Sydney 2000
Tel: (02) 29 4733

EQUATORIAL uses the "spread spectrum" concept of micro-earth stations to tap and transmit data and digital voice via satellite. In the US, where the system was developed, more than 37,000 Equatorial satellite earth stations have already been delivered. Organisations taking advantage of this communications means included "blue chip" names in the finance, insurance, travel and news gathering industries. Equatorial's Australian operation is 90 per cent locally owned.

L M Ericsson Pty Ltd Stands 3, 36 and 37

61 Riggall St, Broadmeadows, Vic 3047
Tel: (03) 309 2244

INTEGRATION of voice and data facilities is the theme of the Ericsson exhibit. A key display is the Ericsson MD110, a voice/data third generation digital PABX with a capacity of 13,000 extensions. Also shown is the company's Financial Dealer System including dedicated lines targeted on the money market, government departments and the military forces. This system is being exported with considerable success.

GEC Communications Stand 22

2 Giffolk Ave, North Ryde, NSW 2113
Tel: (02) 887 6222

GEC is showing a range of facsimile machines from the OKI Electric Industry Co, one of the world's biggest manufacturers of this technology. Included in the exhibit is the OF-1 model suited for the lower end of the market, the OF-23 for more demanding needs and the OF-27 featuring large memory capacity of IBM for 80 A4 pages. Both the OF-27 and OF-23 models can transmit an A4 page in 10 seconds using MMR band compression and incorporate most of the functions now available for high-end GIII machines.

Hanimex Pty Ltd Stand 10

108 Old Pittwater Rd, Brookvale, NSW 2100. Tel: (02) 938 0400

HANIMEX is promoting Duct, a system which makes teleconferencing by phone less expensive. For the price of an STD phone call, Duct allows groups of participants in up to 10 locations to "come together" for interactive discussion. The basic system consists of group terminal, push button telephone and external loudspeaker and microphone. The terminal's inbuilt loudspeaker and microphone are sufficient for small group discussions. Larger groups can use the system's external loudspeaker and up to six microphones. Guest speakers can address groups from thousands of kilometres away. A variety of accessories are also available.

Honeywell Ltd Stand 26

863 Bourke St, Waterloo, Sydney, NSW 2017. Tel: (02) 699 0155

HONEYWELL Controls is showing the newly-released Vox voice messaging system. Vox is fully compatible with the VMX family of systems. The Vox equipment ranges in size from four to 64 ports integrated with any PABX and can handle user communities from 50 to 11,000 in a single system.

Additionally, Vox can network to other Vox or VMX systems anywhere in the world at any time of the day. Also displayed is the SN60 integrated building management system providing systems integration of such functions as heating and ventilation, security, lift control and building evacuation.

Interquartz (A'Asia) Pty Ltd Stand 18

42 Dougharty Rd, West Heidelberg, Vic 3081. Tel: (03) 459 1341

INTERQUARTZ is releasing a complete range of business telephones at Atug '87. The new line starts at the basic (Troop) phones and goes through to high performance, low cost, two-way loudspeaker models.

Interquartz enjoys a close partnership with International Quartz Ltd, Hong Kong, the original developer and manufacturer of the Interquartz range of products. In Australia, the company provides back-up support to corporate customers and an extensive dealer and service network.

Honeywell will be showing the VMX 5000 Vox voice messaging system.

Johns Telecommunications Consultants Stand 23

See Combined Communications Consultants.

Krone (Australia) Technique Pty Ltd Stand 13

2 Hereford St, Berkeley Vale, NSW 2259
Tel: (043) 88 4422

AMONG new products displayed by Krone is a Printed Circuit Commoning Strip, which is designed for 10 pairing, split looping, circuit isolation series or parallel component applications. Also shown is the K22 surge protection module designed for high-speed digital lines and the K19 surge protector with double anode foldback diodes. Krone also has equipment for circuit testing or patching as well as the Krone-LSA-Plus, a no-stripping, no-soldering and no-screwing termination system.

Logica Pty Ltd Stand 41

157 Walker St, North Sydney, NSW 2060
Tel: (02) 957 1700

INTERNATIONAL consulting and software company Logica provides services in strategic consultancy, project management and technical and commercial systems development. In the area of communications, Logica lends its expertise to voice/data communications, message switching, Lans, PABX systems, network design and planning and video applications. Included on the Logica display is information on "The Logica ISDN Report", information vital to Australia's growing communications needs.

NEC Australia Pty Ltd Stand 6

4th Floor, 11 Queens Rd, Melbourne 3000
Tel: (03) 267 6355

INTEGRATED communications is the theme of NEC's exhibit where a range of computers, fax, word processing and intelligent telephones are displayed. Included is NEC's third generation digital PABX which provides voice and data transmission simultaneously. This means computer files can be accessed during a telephone conversation. Also on display is the Neax 2400 Information Management System, which controls and directs the transmission of voice, data, image and text.

Network Automation Pty Ltd Stands 30 & 31

PO Box 373, Milsons Point, NSW 2061
Tel: (02) 929 4988

THIS company designs, instals, supports and markets switching networks, all of which are based on the Optinet range of products. Demonstrated at Atug '87 is the Optinet networking system designed to allow the status of an entire network to be assessed at a glance. The system comprises communications hardware, software and a network management centre. Together, these components create a fully integrated, standalone, transparent network capable of establishing logical connections between peripherals and hosts as well as between different hosts. The network minimises communication costs by handling multi-vendor batch or interactive data on the same network.

NUS International Pty Ltd Stand 29

122 Arthur St, North Sydney, NSW 2060
Tel: (02) 929 4322

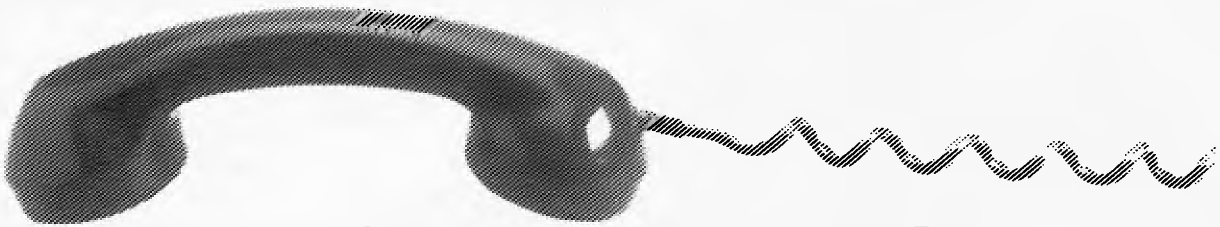
THE telecommunications division of NUS provides professional advice in voice, data, text and image communications offered through its three business services; planning, technical and financial. Expertise includes: preparing of a strategic plan to guide a company's telecommunications growth and development in line with the client's resources; implementing the technical system through onsite survey and investigation, technical specifications for tender and supplier evaluation and negotiation, ordering, supervision and commissioning; and controlling the statutory costs to ensure an understanding and best possible utilisation of these services.

OTC Stand 39

11 Floor, OTC House, 32 Martin Place, Sydney, NSW 2000. Tel: (02) 230 5766

OTC provides service and advice to assist business in tapping into the resource of databanks. Many companies are already establishing their own corporate databases for internal management (financial, production and marketing) as well as customer service (online ordering, shipment tracking, order manufacturing progress). OTC staff are on hand at Atug '87 to offer advice on how to

(Continued page 18)



lephone, he forgot one thing...

answered, saved, redirected and even broadcast to others – at the touch of a button. By storing and forwarding messages VOX links your employees, across the country – or worldwide.

And that's just the beginning. There's Voicenet which eliminates long distance telephone tag and overcomes time differences, a Message Desk for outside and customer calls, Call Answering for automatic message taking and much, much more.

No matter how big or how small your business, VOX can be incorporated into any existing telephone system to dramatically increase productivity and significantly reduce costs.

Like Mr. Bell's invention itself, the applications are limitless. It's so simple, so effective, you'll wonder why it's been nearly a hundred years coming.

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SHOWCASE

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BELL 212A — 1200 bps Full Duplex
Originate and Answer
CCITTV.23 — 1200/75 baud Half Duplex,
with built-in baud rate conversion
CCITT 21 — 300 baud Full Duplex
Originate and Answer
BELL 103 — 300 baud Full Duplex
Originate and Answer

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TRADE ENQUIRIES WELCOME

(Continued from page 17)

get a packet-switching communications system set up to deal with industry specific activities. In addition, OTC provides a complementary electronic mail service as a cost-effective communicating means for its customers. OTC also has the facilities to access international databases.

OTT Pty Ltd — Stand 13A

PO Box 78, Tewantin, Qld 4565

AN international fax directory, claimed to be a world's first, is on show by OTT. The directory, Telefax International, includes the latest update-supplement. Also shown is international telex directory Telex & Telefax International. The nine-volume directory lists about 1.6 million telex, teletex and electronic mail subscribers in 216 countries. Also new is *Fax Facts* — The Layman's Guide to Evaluating, Buying and Operating a Fax Machine from Datashed Communications. OTT's niche in the directories market comes from its position as sole Australasian agent for West German publishers Jaeger & Waldmann.

PABX Advisory Services — Stand 23

See Combined Communications Consultants.

Sagem — Stand 19

2/22 Euston Rd, Alexandria, NSW 2015
Tel: (02) 516 5399

SAGEM is exhibiting a newly-released range of ergonomically designed telex terminals. The basic model (KP version) comprises such enhancements as an inbuilt electronic memory, extended work processing facilities, multi-addressing, automatic calling and retry, delayed deliveries, answerback code verification, automatic and manual tabulation. The basic model can be easily upgraded to include large screen or optional disk unit capable of storing up to 65,000 words in messages.

Scitec Communication Systems — Stands 32, 33

3 Apollo Place, Lane Cove, NSW 2066
Tel: (02) 428 9555

SCITEC is releasing the Maxima integrated backbone network and communications resource manager. The Maxima is essentially a TDM-based multitrunk networking multiplexer which accepts a number of port interfaces. Maxima acts as an intelligent backbone network and distributed switch with any port able to be switched to like ports in the network. The system features intelligent algorithmic auto routing for calculating the best possible connection in any given network topography.

Shuttle Datacom Pty Ltd — Stand 21

Suite 30, 456 St Kilda Rd, Melbourne, Vic 3000. Tel: (03) 267 1011

AMONG new products on the Shuttle Datacom stand is the Shuttle wiring management system which enables use of twisted pair cabling as an economical alternative to coax in major building installation applications. Also shown is the Shuttle X.25 packet-switching equipment and the new Shuttle CX-80, a data exchange concentrator. This unit achieves protocol conversion, switching and interfacing, enabling communication between a diverse range of computer systems including IBM and Wang mainframes. Shuttle also offers security modems, electronic mail box, Error-Free and data compression equipment.

Siemens Ltd — Stand 1

544 Church St, Richmond, Vic 3121
Tel: (03) 420 7202

ISDN technology specialist Siemens is demonstrating the use of Telecom System 601 digital PABX for office automation applications. Also shown is the Commander small business telephone system, with a range of communications network equipment such as video optical fibre line terminal, OF terminal and repeater service panels, 2/34M-bit/sec and 34/140M-bit/sec multiplexers, PCM E&M terminals, optical fibre splicing machine and more.

STC — Stand 12

5 Blue St, North Sydney, NSW 2060
Tel: (02) 925 7226

STC's Business Communications Systems Division offers an extensive range of voice and data equipment including terminals, controllers and printers, Voice/data PABX, office automation equipment and PCs. Products on show at Atug '87 include the Starswitch IDS, the ITT Xtra Personal Computer and enhanced multiline telephones, and the recently released Automatic Call Distribution facility and the enhanced Guest Name Display facility. STC is currently developing the ISDN main exchange under contract to Telecom.

SVT Video Systems Pty Ltd — Stand 25

Unit 1, Pymble Grove, Ryde Rd, Pymble, NSW 2073. Tel: (02) 498 6386

SVT majors in a comprehensive range of videoconferencing products. On show is the company's Videoconferencing Terminal (VCT), already proved in operation using Aussat transmission circuits. VCT is a complete package comprising a cabinet with two face cameras and three TV screens, with microphones and remote control unit. A display camera with remote zoom and focus controls can also be provided. Another exhibit is the VCSU4 videoconferencing studio unit containing the VCO4 terminal unit.

Telecom Australia — Stand 2

18th Floor, 199 William St, Melbourne, Vic 3000. Tel: (03) 606 5207

TELECOM has chosen Atug as the venue for the first public demonstration of its forthcoming ISDN network. The Telecom venture promises users flexibility, control and multifunction uses aimed at improving business performance and productivity. ISDN features include end-to-end digital connectivity; single network access, voice, text data and image services and network management and testing facilities. Also on show is equipment provided by Telecom Research Laboratories in conjunction with STC. This includes Group IV facsimile, digital telephones, multifunctional workstations, photo videotex and ISDN protocol testers.

Telecost Pty Ltd — Stand 8

468 Whitehorse Rd, Surrey Hills, Vic 3127
Tel: (03) 836 0322

The Telephone Supply Company Pty Ltd — Stand 17

190 George St, Parramatta, NSW 2150
Tel: (02) 635 6466

TELEPHONE Supply Company is exhibiting the new Philips SBX PABX. The system is designed for small business or as a satellite PABX on larger systems. It features maximum capacity of five exchange lines and 12 extensions. Facilities available on the system are enquiry/transfer, auto ringback, call pickup, camp on, call park, last number re-dial, conference calls and intrusion and flexible toll restrictions. Telephone Supply also markets telephones and terminal equipment through both the Callmaster and Teleace ranges.

Trippett Lane — Stand 13

Suite 7, 497 Burke Rd, Hawthorne East, Vic 3123. Tel: (03) 20 6822

TRIPPETT Lane is a joint venture between Trippett Allan and Associates and Lane Telecommunications. The organisation specialises in strategic planning, design and implementation of business communication systems. Elements covered include telephony, data, text, telemetry, image and video. Trippett Lane also provides an independent systems engineering service to both private and government sectors.

On show at Atug '87: the Tytel 762 two-line loudspeaking telephone.

Tytel Pty Ltd — Stand 20

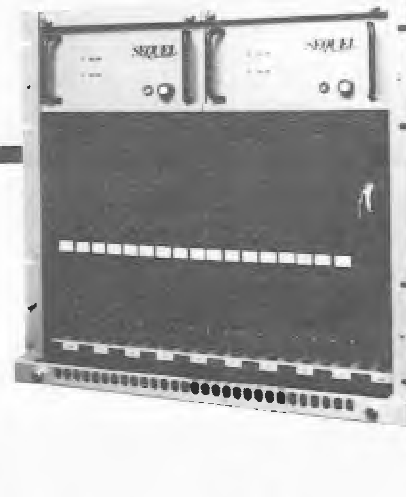
74 Whiting St, Artarmon, NSW 2064
Tel: (02) 439 4499

TYTEL'S range of business telephones includes single and two-line instruments for desk or wall mounting. On show are the Australian Design Award winning Tytel 762 two-line loudspeaking telephone and the single line Tytel 761 loudspeaking telephone. All Tytel handsets are designed to complement the modern PABX. Also featured at Atug '87 is enhanced Tytel 721 memory telephone, the Tytel 741 display telephone and the Tytel 751 Diallex Telephone which stores 280 numbers in memory.

Unisys — Stand 14

30 Alfred St, Milsons Point, NSW 2061
Tel: (02) 963 6000

THE Voice Information Processing System (Vips) which turns a touchtone telephone into a keyboard is a highlight of the Unisys stand. Users of the Vips system can listen to questions or messages stored on a Unisys computer and respond using a standard touchtone phone. Either of the two 4th generation languages Unisys offers, Mapper and Linc, may be used to swiftly develop an applications environment for Vips. This processing system is easily linked to other vendors' computers, effectively allowing Vips to speak for the host, guiding users through the application and supplying information in response to the user's enquiry. Also featured on the stand are the Doelz network switches that will form the backbone of the Queensland Government's wide area network.



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SPECIAL FEATURE

LOCAL AREA NETWORKS

With Ethernet approaching the ripe old age (for computer-related technologies) of 14 years, local-area networks (Lans) are anything but new. And with the enormous expansion of the industry in the six or so years since the introduction of IBM's all-dominant personal computer, the technology has blossomed, expanding at such a rate that user diffidence could be ascribed to uncertainty — amounting to confusion — in the face of a proliferation of information. Major installations are being made successfully, but, as the huge order by Deloitte Haskins and Sells illustrates (see Case Study on page 21), such orders are considered far enough from the sophisticated norm to be newsworthy. To assist wouldbe Lan users, the Special Feature this month concentrates on personal computer networks, giving an overview of the technology, the products and the methods that may simplify a user's planning for and installation of a Lan.

Proven technology looking for users

By Paula Musich

Although most major corporations have installed local networks, the vast majority of personal computers in these corporations remain unconnected according to a recently released International Data Corp study.

In a survey of nearly 70 large companies and US government agencies, the research company found that 73 per cent had at least one local network installed. The average number of networks installed at these companies was 7.6. Despite the acceptance of local nets, only a handful of these organisations said that more than 20 per cent of their personal computers were linked to local networks.

The study characterised typical large corporation network installations as either small personal computer networks or networks that link a number of terminals to one or more minicomputers. Most of the installed personal computer networks were either pilot networks set up by MIS or small departmental networks used for electronic mail or peripheral sharing.

"The MIS mentality is, 'Let's bring in a small network and test it before we invest a lot of money in a larger installation'," said an IDC analyst. "Conversely, small departments that do not have large budgets are buying small networks for specific applications."

Among the companies with installed networks, no one local network vendor held a dominant position. Novell Inc garnered the largest number of installations, accounting for 13 per cent of the networks installed at user sites. 3Com Corp followed with 9.5 per cent of the installed networks. Wang Laboratories Inc had 7.5 per cent and Xerox Corp had 6 per cent.

Although IBM has been shipping its personal computer Token Ring adapters for less than a year, some 21 Token Ring networks were in place at 10 of the organisations surveyed. All the Token Ring nets were MIS pilot installations linking between eight and 15 personal computers.

The study found that users rated electronic mail as the most important application on their networks. While previous studies have found that users bought local networks primarily to share expensive peripherals, the IDC analyst maintained that this has changed because of declining peripheral costs.

Out on a limb

He also pointed out that once a network is installed, users realise productivity gains by sharing information through electronic mail and file transfer capabilities. "Tying small groups together really changes the way people work," he said.

The study found users lamenting the lack of good multi-user software for local networks. Few users said their personal computer networks currently run multi-user applications, despite the fact that IBM's Network Basic I/O System, and emerging standard interface for personal computer networks, has been available to applications developers for more than a year.

"Major players such as Ashton-Tate and Lotus have not gone out on a limb to push the market," the analyst said. "User perception of Ashton-Tate's first effort was that it was a terrible multi-user application. There were a lot of bugs in the software — the kind of things you see with new software."

Some 40 per cent of the organisations with networks reported that at least one of their nets offered gateway access to a larger system. Seventeen companies had 3270 gateways to IBM hosts.

Although vendors contend that personal computer networks provide a more effective distribution of computing resources, only 15 per cent of the respondents said they believed that personal computer networks were an effective substitute for departmental minicomputers.

Said one respondent: "Network speed, data integrity and centralised network management functions are not mature. Applications software does not take full advantage of local net capabilities."

IDC Research Australia Pty Ltd is at 56 Berry St, North Sydney 2060. Tel: (02) 922 5300.

User ratings of application importance

Network application	Number (%)
Electronic mail	10 (19.6)
File/information sharing	6 (11.8)
Pilot	4 (7.8)
Document transfer	4 (7.8)
Budget	3 (5.9)
Resource sharing	3 (5.9)
Mainframe access (gateway)	3 (5.9)
Data collection	2 (3.9)
Document storage and retrieval system	1 (2.0)
Multi-user sofware	1 (2.0)
Didn't answer/don't know	14 (27.4)
Total	**51 (100)**

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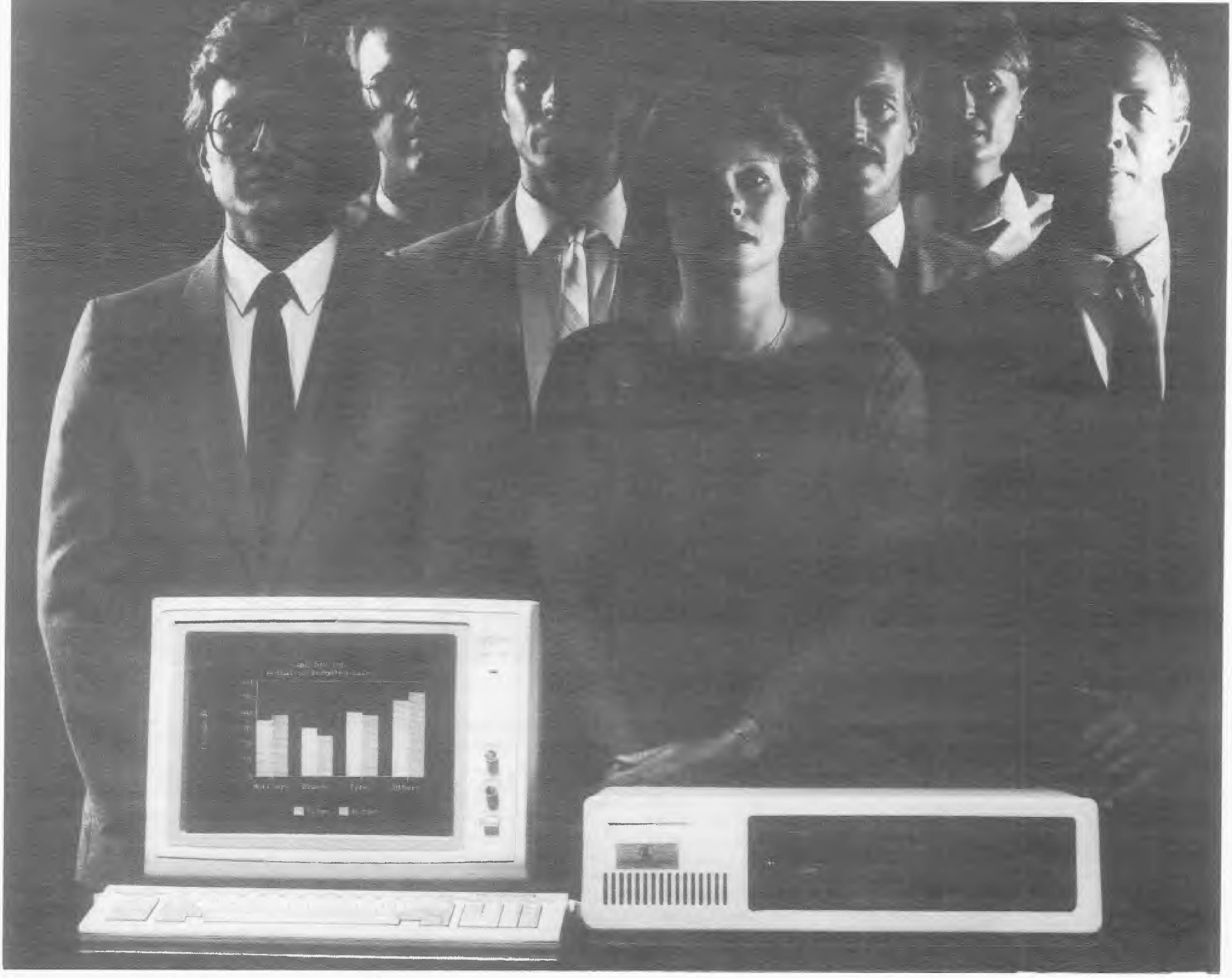

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How Deloitte Haskins is 'curing' a pain in the neck

By Peter Scott

SYDNEY — A changing company structure that is better suited by networked personal computers than by a centralised processing approach has been the catalyst driving Deloitte Haskins and Sells into one of the world's biggest networking agreements.

The chartered accountancy company has committed itself totally to a national network of personal computers with the signing of a $A2 million agreement with Data Peripherals for Novell's Netware software.

"We have invested a total of $A3 million, including additional hardware in the system, which will replace the minicomputer systems and word processing operations in each of our 24 offices around Australia," explained Rob Hunwick, Deloitte's national director of information and technology.

Networks have already been installed in 17 offices housing 1200 staff and 700 personal computers. Hunwick expects to have networks up and running in each of the 24 sites by September. Initially the networks will be implemented in basic form, and communications between branches, or between auditors with laptops in the field and their branch office, will be by dialup line. However, the networks will be developed to form stronger national links, depending on the traffic requirements and will be enhanced with more capabilities, such as electronic mail. The fully configured nationwide network is expected to be in place by June, 1988.

Hard decision

Deloittes previously used Wang minicomputers for word processing, MAI Basic Four minis for DP, and PCs where required. It has decided as long ago as 1982 to standardise on MS-Dos personal computers for use within the centralised processing approach used in the branches. "It was a hard decision at that time," Hunwick noted.

At about the same time Deloittes also standardised on Novell products wherever personal computers were to be networked

However, even the existence of standards within the decentralised approach failed to resolve many of the company's DP difficulties.

"The problem was that offices did not grow at the same rate," said Hunwick. "If one grew very fast we suddenly had a need for larger minis. It was a pain in the neck. In addition, there was a lot of duplication of information. For example, names and addresses on a PC database could not be printed out on the Wang hardware."

To overcome the problem of the ongoing need to upgrade minis, Hunwick and Karnig Momdjian, the national computer services manager at Deloittes, decided in 1985 that a different approach was needed. They decided then to buy sufficient hardware to carry them through the next two years while they planned the implementation of a completely new system for 1987. "DP put a lot of effort into the project," Momdjian said. "A big team looked at various aspects, not just implementation problems but at total solutions to our information needs."

They rejected the idea of a central computer to service offices Australia-wide, deciding instead to take the completely opposite tack towards decentralisation. It was a decision that fitted well with changes being made to the company's structure.

"The traditional approach of accountancy companies is to design systems for administration control, whereas Deloittes has designed this system for communication and the promotion of individual expertise of our personnel," Hunwick explained.

"Our company is moving towards a flatter organisation and away from traditional pyramid structures. The networking of our personnel through PCs reflects this view, as it breaks down barriers caused by geography or lack of information.

Having defined the goal, Deloittes considered the network suppliers capable of delivering the solution. After extensive evaluations and visits to large network users in the US, Novell was chosen. Deloittes now has such a good relationship with the supplier that it has a hotline to Novell's Utah headquarters and will act as a beta test site for future Novell releases.

"We work as a team and that has given us more sway with them. They are pretty down-to-earth people," claimed Momdjian. "We have found a few problems, but we are at the leading edge and have to expect that.

Karnig Momdjian (left) and Rob Hunwick

Is your LAN server built to weather the storm?

A funny thing happens when a workstation-turned-server faces the storm of heavy use typical of a local area network.

That is, of course, if you find poor performance funny.

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The 80286-based NetWare LAN Servers 286A and 286B are compatible with all major LANs. The 6800-based 68B supports the NetWare S-Net and the ARCNET 68 topologies.

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LOCAL-AREA NETWORKS

■ *Mitchell Duncan is a consulting communications engineer based in Sydney.*

The low cost

By Mitchell Duncan

Table 1. Serial-Port Lans Compared

	Ideashare	Easylan	Lanlink
Server/Peer	Server	Peer	Server
Modem support	Yes	Yes	Yes
Messaging	Yes	Peer/Satellite	Yes
Password protection	Yes	Yes	Limited
Menu-driven installation	Yes	Yes	No
Maximum workstations	4	*18	*72
Shared file execution	Yes	No	Yes
Dos command redirection	Yes	No	Yes
Network Speed (kbits/sec)	115.2	56	115.2

* Theoretical expansion capability — extra hardware is required to be purchased for expansion.

SINCE their first appearance on the data-processing horizon, local area networks (Lans) have been a source of discussion, contention, headache and sometimes pure frustration. This is not to say that Lans are more trouble than they are worth, since many vendors and users alike will not hesitate to extol their virtues.

At present, the Lans offer a confusing tangle of interface boards, cables, connectors, repeaters, stubs, splitters, terminators, servers, slaves, file locking and passwords. True, this is part of the unavoidable proclivity in Lan installation, but the pain to both brain and pocket is not a necessary part of the process.

In Australia we see many products from Europe, Asia and The United States, and the Lan product range is no exception. By the mere fact that IBM dominates the PC marketplace, and is US-based, most of the Lan products for IBM's machines emanate from the US.

The Australian business environment is somewhat different from that of the US. Small business dominates the scene here and 80 per cent of employers have 200 or fewer employees. A significant number of these businesses would have some computing power (perhaps a small number of PCs) which could utilise the power and flexibility of networking. Hence the prospect of a low-cost Lan suited to the Australian small business environment represents a significant benefit to users.

With the price of IBM PCs falling below the $A3000 mark, the spending of up to 50 per cent of the system price on some Lans, to merely interconnect machines, is difficult to justify. These prices only reflect the hardware for interfacing and do not include outlays for network software, installation and other consequential costs like staff training and downtime to the systems.

Ideal alternative

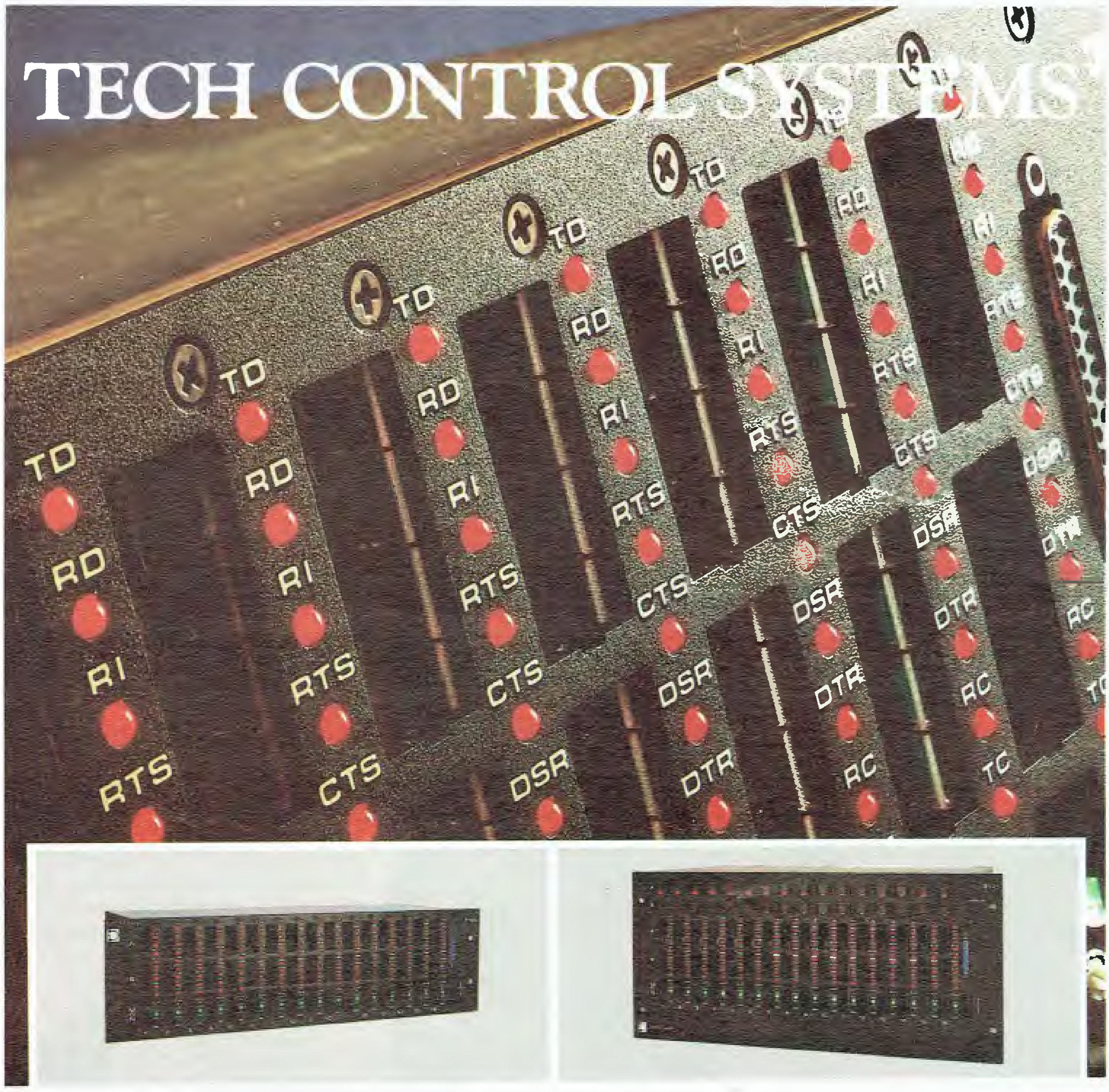
An ideal alternative to the specialised Lan hardware/software is the "port-to-port" Lan. This solution uses the versatile and ubiquitous RS-232C serial port, and produces a simple and efficient, yet economic Lan. These networks require only that PCs be outfitted with the standard RS-232 port and installation of software and cables.

Such modest networks lack the speed and power of their higher priced siblings, yet cost around one fifth as much. This article decribes three Lan's in this class of networks; Easylan (by Server Technology), Lanlink (by the Software Link) and Ideashare (by Ideassociates). They represent an affordable way to break into a complex area of computer office automation.

All three Lans make use of a server, a PC usually equipped with a hard disk, assigned to handle the network tasks of file and resource sharing. In the case of Easylan, the peer principle is followed, and all networked computers have direct and equal access rights to disks and peripherals. With Ideashare and Lanlink, the server performs the traditional role of network administrator.

In all cases the servers are not dedicated and perform network tasks as well as functioning as workstations. None of the Lans permits multiple servers, nor allows the server's hard disk to be partitioned into volumes for each user. Each network does provide some means of file security, though none supports record locking.

Each of the networks follows a star configuration and uses a null modem RS-232 cable. Ideashare and Lanlink offer password



A range of Patch/Monitor and Switch Patch Monitor equipment from Datatran offers the most comprehensive and price competitive range of this type of tech control equipment. Systems can be configured from simple patching or monitoring to Large Front-End Processor Switching Systems with remote control.

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Easylan is by far the simplest of the three networks to instal and operate, yet lacks some of the more sophisticated features of the other two. Distributed access to printers is by far the most flexible feature, since it allows any printer connected to any machine to be a network resource. This is due to the peer-to-peer nature of connection of machines.

Easylan does not allow satellite PCs to execute a program resident on the server's hard disk; they must reside on the user PC to run. Thus, if one requires the use of a data file, one needs to copy the file from the server, change the file and then copy it back. Conflicts are avoided by a useful file-locking procedure, whereby a file is renamed if it is in use by a satellite machine. Thus, no other satellite or the server can access this file. The file is freed when it is copied back from a satellite.

Easylan

Easylan installation is not menu-driven but is quite simple. The user needs to instal software on the server and a unique serialised disk for each networked computer. The Easylan software will support 18 workstations if a special multiport card is purchased, although four PCs would be optimum.

A suite of new commands must be added to the user's repertoire — for example, Ezdir, Ezprint and Ezerase. These commands are easy to use, but others become more difficult to remember — EZCHGP, EZCHGBP and EZCHGC and thus to integrate into everyday use of the Lan.

A local printer is not available to the computer to which it is attached unless a specific command is issued. While the server's job is being printed, no other network user can use that printer. The printer is returned to the network by issuing another command, at which time the print spooler resumes the satellite print jobs.

Realtime messaging, although not significant to some users, is not provided by Easylan. This together with some reporting on peripheral status, would make useful additions to the Easylan package.

The speed of Easylan is not startling. At 56K-bits/sec on an IBM PC AT, this represents a significant difference from the faster competitors, particularly when transferring files on a heavily loaded server.

Lanlink

A more complete network alternative is offered by Lanlink. It has the option of allowing up to 72 satellites to be connected to a server via a layered network. The server can connect to up to seven satellites, which in turn may be connected to up to seven more satellites, although this is limited by practical performance limits.

Lanlink relies on normal Dos commands and both Lanlink and Ideashare support Dos 3.1 and are said to be IBM Netbios compatible.

Lanlink differentiates among several levels of network privileges for different groups of authorised users. Passwords may be used to allow read/write access or read-only access to particular subdirectories or disk drives.

As with Ideashare, Lanlink does not have any method by which a satellite machine can directly communicate with another satellite. Lanlink does, however, support modem dial-in operation and, when combined with the password protection, allows a secure form of authorisation limited useage.

Speed of operation is achieved by using a proprietary data compression algorithm. This enables data to be transferred at up to 115.2K-bits/sec, although the overheads of data compression/decompression have an impact on a loaded system.

Ideashare

As evidence for a total networking concept, Ideashare is upgradable to the Ethernet-style Lan, Ideanet. This path gives a purchaser the opportunity of low-cost startup in networking with the potential for painless growth to a full Lan implementation later on.

Ideashare links up to four machines to share one server's resources (three satellites, one server). Apart from the normal resource sharing common to the other two Lans, Ideashare allows simultaneous access to the same data file. It works with the networked versions of programs like Lotus 1-2-3, Symphony, Wordstar and Multimate.

A "lock" and "unlock" feature of Ideashare allows the user to reserve up to 15 server based files for a satellite's use. Similarly, a user may "reserve" a printer for its own use for a period of time, otherwise background print spooling is the normal mode of operation.

Ideashare includes a useful feature of electronic mail messaging. Although direct electronic-mail is only available between server and users, a message broadcast facility is provided to allow the server to communicate to all users.

The network can be administered simply by assigning read-only, read/write and lockout privileges to a password on a drive-by-drive basis. This facility extends to the dial-in modem capability offered by Ideashare.

Server drives are accessed as logical remote drives by the users.

DISTRIBUTORS

EASYLAN — Software Corporation of Australia, 138 Buckhurst St, South Melbourne 3205. Tel: (03) 699 7255.

LANLINK — SPS Software Product Support Pty Ltd, 15 Pacific Highway, Roseville, NSW 2069.

IDEASHARE — Ideassociates, Level 21, Bondi Junction Plaza, 500 Oxford St, Bondi Junction, NSW 2022. Tel: (02) 387 5222.

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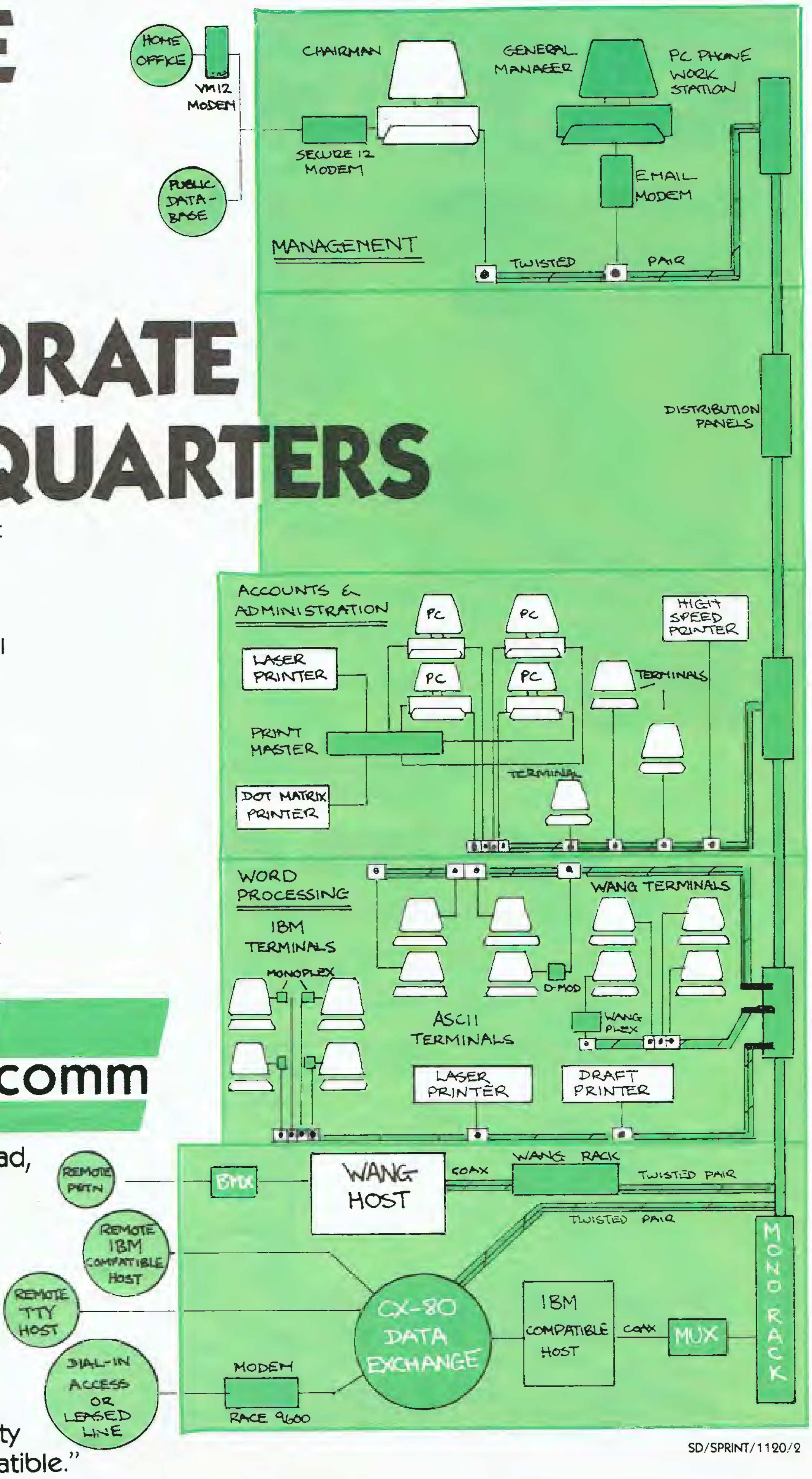

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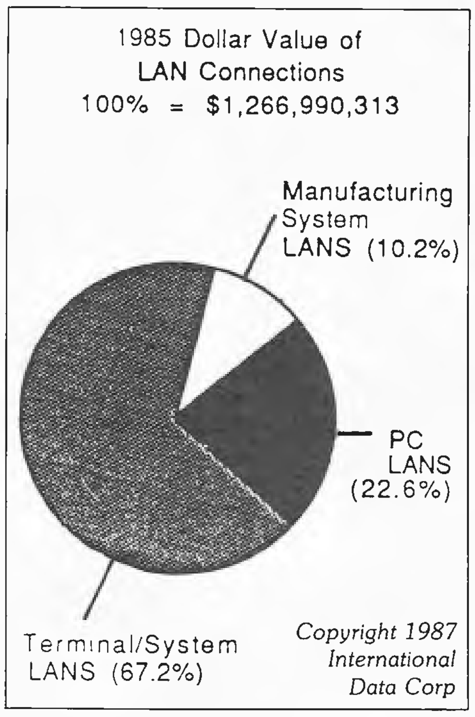

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WHICH LAN?

By Don Crabb

What do the competing local-area network (Lan) vendors offer? How do you choose between the different Lans? Many of the managers who decide to implement a Lan simply do not have the time for all of the research required to thoroughly understand Lans, which leads to our first recommendation: do not buy one if you have not discussed your needs with a networking consultant, and do not set up a network without the help of that expert.

In an industry where consultant services are often oversold and superfluous, the Lan marketplace is an exception. A good network consultant can save you thousands of dollars in wasted time and poorly selected equipment. Since most Lan installations are fairly expensive propositions, do not skimp on the network consultant's fee.

To help you to ask your consultant the right questions and save time on basics, here are some guidelines on how to evaluate each of the main vendors and its systems. We will also discuss performance considerations, costs, value, and the inevitable trade-offs you must face when committing to a specific Lan system. This article is not a formal review of each system, but rather a consumer's guide to the different systems available. Our information comes from a number of sources, including first-hand use of the systems, testimony by users, and data from vendors.

We cannot consider all the Lan vendors marketing equipment and software, but we have tried to cover the main players in this market. We will discuss IBM's Token Ring Network and PC Network, Novell's Netware/S-Net, 3Com's Etherseries/3Server, Corvus's Omninet/Omnidrive and Apple's Appletalk. Vendors and products not included but worth considering include Orchid Technologies' PC-Net, Sunol Systems' Sunnet and Ungermann-Bass's Net/One.

Token ring

Not surprisingly, IBM is a major player in the Lan game. IBM has announced and produced several different communications and network systems already, with its newest being the Token Ring Network. The system that IBM has sold for a year or so is the PC Network. We will look at both.

IBM's Token Ring Network (in all its forms) was announced on October 15, 1985, and its components have been available for some months. This network system is actually two different systems, with two different protocols: the Token Passing Ring Network and the Token Passing Bus. The Token Passing Ring is of primary interest to IBM PC owners.

The network as designed can connect PCs via a variety of cabling systems, including coaxial, twinaxial, and ordinary twisted-pair wiring. IBM has followed the network specifications for token ring baseband networks (IEEE Standard 802.5), a standard IBM proposed.

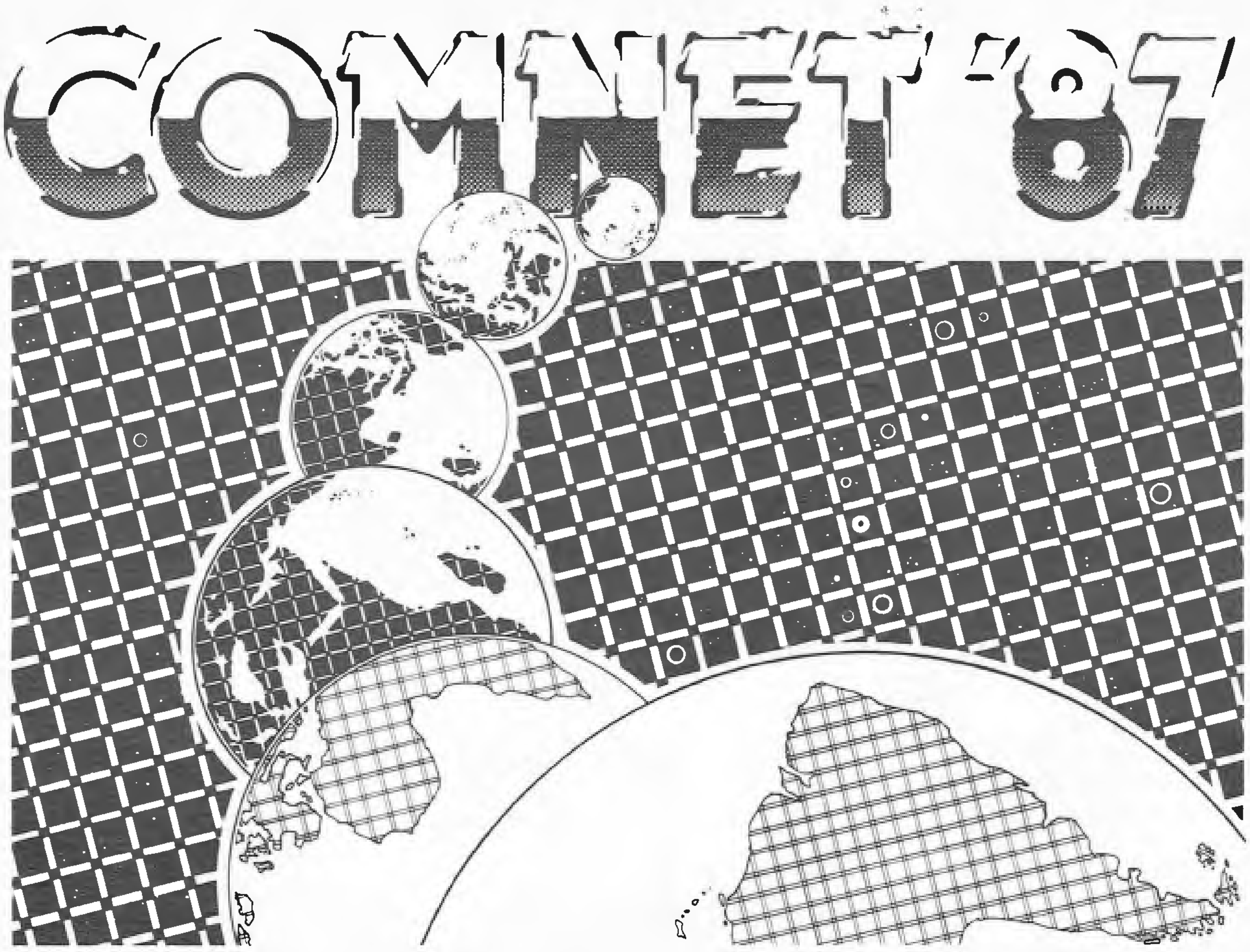
> *‘ The Token Ring network system is actually two different systems, with two different protocols ’*

The Token Ring connects PCs (including XTs, ATs, and compatibles) through a network adapter card in each PC. The network cable is attached to this card. The wiring pattern for connecting machines resembles a star, although the way data are passed from machine to machine resembles a ring. Each device is attached to the ring through a network access device (IBM calls it a Multistation Access Unit), thus the star wiring pattern. Each Access Unit can connect up to eight network PCs, and Access Units can connect with each other.

Capable of sending data between machines at a rate of 4M-bits/sec the IBM Token Ring is a high-speed network. Up to 260 devices can be connected on one token ring using coaxial cabling with the appropriate number of Multistation Access Units. Up to 72 devices can make up one network using twisted-pair wire (such as the telephone wiring already in place).

Network data management and network messages are largely handled by the interface cards plugged into each PC. Information is shared among PCs on the IBM Token Ring with electronic tokens that identify and route segments of information through the network. The protocols for this data sharing are provided by the network interface adapters. The Multistation Access Unit prevents a single PC from bringing down the entire network by allowing network traffic to bypass individually attached PCs should problems arise.

With this hardware, networking software



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Dixon Doll and Ken Thurber are world-renowned authorities, and their leadership of the first Comnet outside the US is a coup for Australian and New Zealand computer and communications users, specialists and policy-makers.

Doll will define his company's step-by-step methodology for identifying strategic applications on the network. This is a detailed walkthrough which will help the user avoid unnecessary risks such as vendor lock-ins and exploit opportunities and economics that result from a carefully planned strategy.

Thurber will examine the IBM Token-Ring vs. other Lan choices. Participants will get an across-the-board overview of announced products, future plans, compatible products and IBM's overall strategy with this technology. Attendees will discuss the Token-Ring's relationship to IEE 802.5, the IBM Cabling System and IBM hosts, and the status of Token-Ring compatible systems from third-party vendors.

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Computerworld EXPO

A consumer's guide

is also provided. Software includes a networking interface and two different application program interfaces.

The IBM Token Ring does not appear to be positioned as a direct competitor to the Lans on the market that provide direct network file serving and network services, although it can be configured for those purposes. This network system is meant for larger installations, from entire buildings to complete campuses. The IBM Token Ring will likely serve as a networking "backbone" that allows other Lans and systems to connect and share files and resources. Individual access to shared applications and shared hardware resources can also be provided by other IBM networking products attached to the ring. These products include gateways to mainframes and minicomputers and the IBM PC Network.

As might be expected with all of its capabilities, the IBM Token Ring is not an inexpensive system. But in considering costs, you must compare the costs of similar services or functions using standalone equipment such as supermicros or smaller multi-user systems with those of the Lan.

A Lan allows you to make use of computers and software you already have but some forms of data sharing may be easier on another type of system.

IBM's Token Ring Network provides a fairly high-performance system adept at connecting PCs over a wide geographical area. Use of the Token Ring in a single office is probably technological overkill, though.

IBM PC Network

For less ambitious network topologies, IBM offers its PC Network. PC Network is a single-channel broadband network that operates at 2M-bits/sec. The interface cards for it are manufactured for IBM by Sytek. It uses PC Network interface boards and coaxial cable to connect the machines. PC-Dos 3.1 is the heart of its network control system and supports a special network basic input/output system (Bios) provided on the interfacing boards (called Netbios).

The lower cost IBM network also employs networking software based on Microsoft Networks (MS Net). MS Net intercepts and redirects requests from the stations on the network and supports record and file locking of shared data files. It is important in allowing the integration of operating systems with network control programs and making it easier to share application software across different Lans. It also provides the generic link between any vendor's Lan software and PC- or MS-Dos 3.1. In turn, Dos 3.1 provides network support via its share command.

PC Network is suitable for hooking up a small number of PCs (between eight and 10) that are not more than a hundred metres apart, such as you might find in an office.

In comparison to the Token Ring or other networks, PC Network is not technologically interesting — it has been around in one form or another for several years. But the system works. You can expand it by connecting it with the Token Ring Network and other IBM networking products. For offices with established IBM equipment and compatibles, PC Network is not a bad Lan alternative to consider, but other vendors can offer better performance and prices. The installation of a PC Network can also be tricky.

Novell Netware/S-Net

One of the most established vendors in the Lan market is Novell. Novell (represented in Australia by Data Peripherals and others) does not just sell you its own complete system, it will also sell you its Lan software to run on other people's Lan hardware. Our evaluation is primarily based on the combined Novell hardware/software Lan, known as Netware/S-Net, which includes a proprietary dedicated network file server.

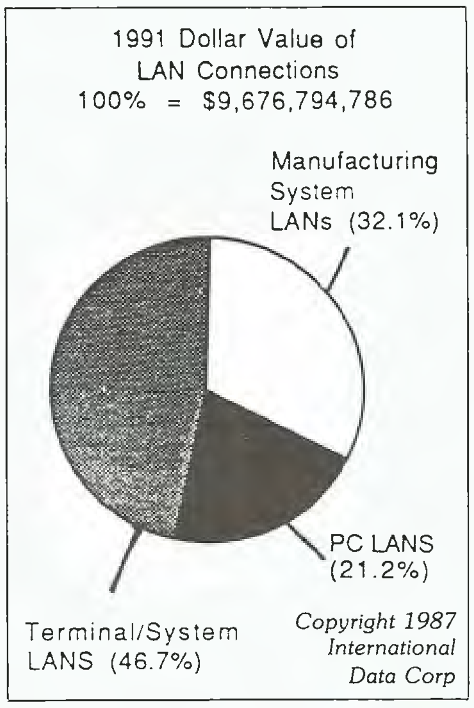
The strength of the Novell Lan is its Netware (and Advanced Netware) software. Netware is a sophisticated network control program that is proprietary. It does not use Dos 301 or MS Net for its network interfacing. Advanced Netware can provide shared access for up to 4G-bytes of disk storage, with 500M-bytes on each file server.

Novell Netware includes perhaps the most sophisticated record and file protection and access functions of any of the Lans. Basic file and record locking is supported, as is password protection. The network also provides limited access to subdirectories and volumes.

The Novell Lan is a baseband system with a bandwidth of 600 K-bits/sec, but this specification illustrates our point about such numbers. Although the Novell Lan has one of the smallest bandwidths of all available Lans, its actual performance beats most other systems. Part of its performance is because of a very fast file server that Novell supplies, but the software performs better than most, even operating on other file servers.

The topology is the familiar star, with up

(Continued page 26)



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LOCAL-AREA NETWORKS

A consumer's guide to Lans

(Continued from page 25)

to 24 computers connected, and twisted-pair cabling. Netware/S-Net interface boards can accommodate a wide variety of micro-computers, including Apple IIe's, TI Professionals, DEC Rainbows, and the usual IBM PCs and companies. The network access protocol is also proprietary.

Although the Novell system is not cheap, its performance is worth the price. The Novell Lan is a true network file server system, and it can work effectively with applications that have not been modified for multi-user access. (Again, though, check your software licences to see if this kind of access is allowed.) The record and file locking are among the best.

The Novell server works well. It allows quick access to shared data and resources. The network software provides a full set of commands to deal with files, directories, and shared peripherals. Novell has implemented its own special system software for dealing with shared disks, making access much more efficient than it would be under an MS-Net/Dos. Novell uses both disk caching and cylinder search techniques to speed the access of data from the shared disks. Part of the system's high performance is also due to its star topology. Each personal computer connected to the S-Net server can access it directly without sharing limited cable bandwidth with other micros (as in a common bus network, where a single cable connects the machines).

Novell Netware/S-Net provides good performance and connectivity to other networks and products from other vendors. A Netware/S-Net system is not the easiest to instal. We would recommend that you pay the local dealer to configure and instal it. Its biggest drawback may be its proprietary nature. When you buy into a Novell Lan you cannot be sure that you have not cut yourself off from the mainstream of Lan developments (That is, the IBM, MS Net world). But the system works as advertised.

3Com Etherseries/3Server

Another well-established Lan heavyweight is 3Com (represented in Australia by Imagineering) which produces a variety of networking products. Etherseries software and 3Server hardware are the basis for 3Com's most popular Lan.

The 3Server is a hard disk networking file server that can connect Apple Macintoshes (via Appletalk) and IBM PCs (via Ethernet) to its shared hard disk file system. The 3Server and its controlling software are possible.

The network software that runs on the 3Server is based on the Ethernet protocol. Called Etherseries, the products include Ethershare, Etherprint, Etherseries/Dos, Ethermenu, and Ethermac.

The 3Com 3Server is a dedicated. high-performance network server that includes its own diagnostic software, central processing unit, random-access memory, and hard disk (much like the Novell Netware/S-Net system). The 3Server can run several software networking system from 3Com in addition to the Etherseries software.

Microcomputers connect to the 3Server under Ethershare using Etherlink Ethernet transceiver cards and coaxial cable, while Macintoshes connect via Appletalk cable. The bus-oriented baseband network bandwidth is 10M-bits/sec while supporting the CSMA/CD access method. The Etherseries software provides shared access to network resources by all connected computers, including hard disk volumes and printing.

Like Novell's Netware/S-Net, the 3Com Etherseries/3Server is a robust system that provides a proprietary network operating system and local interface software to run on each connected computer. File and record locking are supported, and users must log on to the network with password protection. The 3Server can connect IBM PCs, Macintoshes, and a number of PC compatibles for shared software, file, and resource access. (The 3Server will support a Laserwriter, for example.) A typical 3Server Lan will connect 10 to 30 machines and allow them to share up to 420M-bytes of hard disk space. Backup tape drives can be attached to the server.

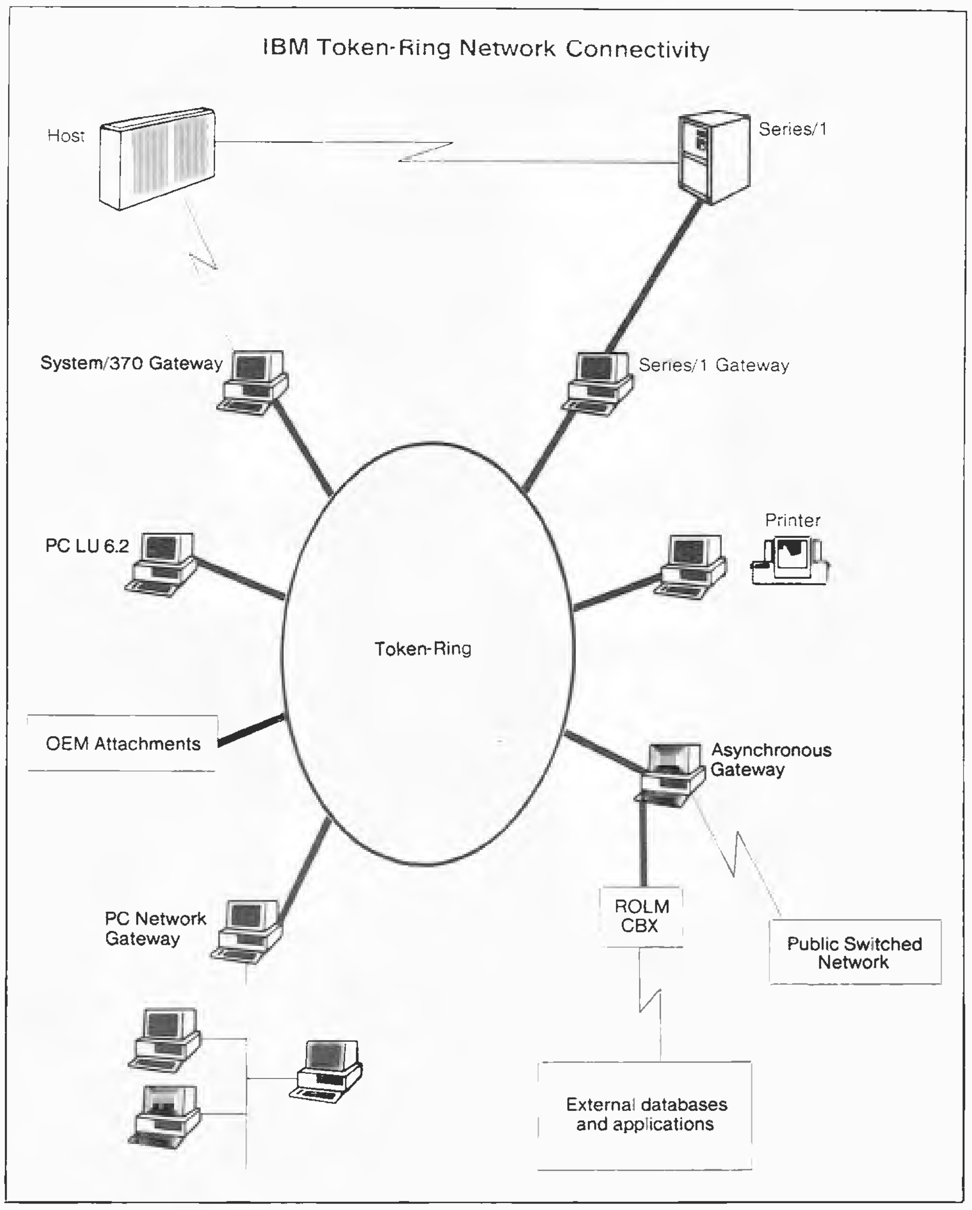
Overall, the 3Server and Etherseries provides a high-performance, albeit costly, system that works as billed. The system is not simply to instal, although it is a good choice if you need to connect IBM PCs and Macintoshes as well as share resources.

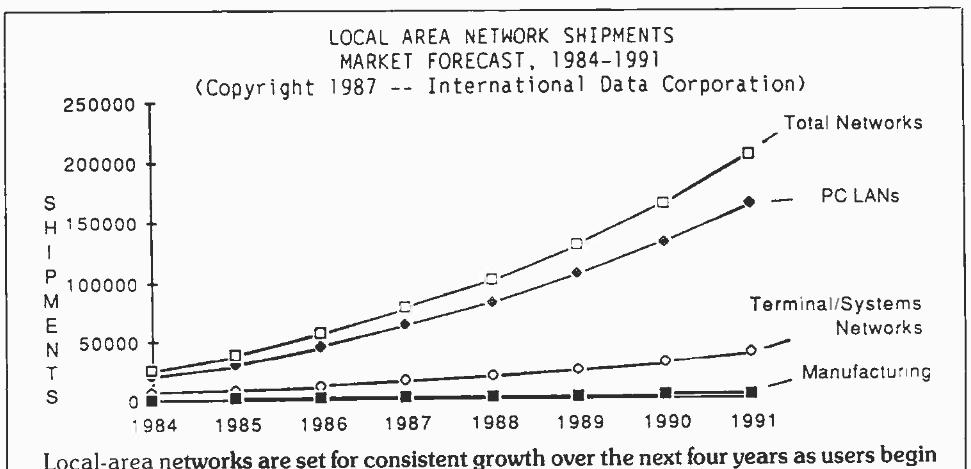
Robust system

One of the most economical networks is from Corvus, represented by Hrizon Computers of Sydney. Its Omninet/Omni-drive system is a good, lower cost alternative to the Novell and 3Com Lans. It does not have the high performance of these competitors, but it is definitely cheaper.

> *' which Lan to buy depends on many variables . . . find a good networking consultant '*

Omninet's strength is not performance, which falls off dramatically when one connects anywhere near the maximum of 64 machines. A more practical limit would be 10. The network can extend 300 metres from end to end without electronic repeaters. (Withs repeaters, this limit is raised to 1000 metres). Omninet's strength derives from its wide applicability. This Lan can connect an impressive variety of computers, from IBM PCs to Macintoshes to Apple IIs and IIIs to DEC Rainbows and others.





Local-area networks are set for consistent growth over the next four years as users begin to feel more comfortable with the technology.

Omninet is a bus-oriented network that uses twisted-pair cabling. The baseband network has a bandwidth of 1M-bit/sec, using the CSMA/CD access method. Omninet is one of the easiest Lans to instal because of its structure. Next to Appletalk, it is probably the easiest to instal of those mentioned here. Computers are connected through interface boards and cable taps.

Omninet's Omnidrive hard disk file server is similar to 3Com's or Novell's. An important feature is that each logical volume of the disk can support different operating systems. This allows a diverse group of computers to attach to the Lan. Like other file servers, file and record locking are supported, although they are not as sophisticated as those provided by Novell or 3Com.

The proprietary Omninet software provides a good menu-driven user interface, and it is easy to use, like the 3Com and Novell systems.

Slowest of all

Although not primarily a Lan supplier, Apple computer has entered the low-performance end of Lans with its Appletalk network.

It is the slowest of all the Lans we have evaluated. It has a nominal bandwidth of 230.4K-bits/sec. It is also the cheapest. It is a baseband bus-oriented network that uses twisted-pair wiring. (Each machine is connected by one cable.)

Unlike some other bus-oriented networks, Appletalk uses passive connections to each device on the Lan so that the entire network does not fail if one device (node) fails. The maximum end-to-end length of a single Appletalk network is 300 metres, with up to 32 devices connected to it.

Appletalk does not require network interface boards when Macintoshes are connected, since the networking-support circuitry is already present in all versions of the Macintosh. (Other vendors are planning to offer interface boards for PCs and other machines.) Network support for Appletalk is built into the Macintosh's operating systems so that additional networking operating systems are unncessary.

As a light-duty Lan for sharing files and a Laserwriter printer, Appletalk does well. Some multi-user software (Omnis 3, for example) has been written for Appletalk and will run off the hard disks of Macs connected to the network.

Unfortunately, Apple does not supply any print spooling software for Appletalk, so if another Macintosh is using the Laserwriter when you send a job, you must wait for your job to go through or cancel the print request. This wait for printer resources can be quite annoying.

Overall, Appletalk is a useful product for printer sharing and some shared file access among Macintoshes. Its price is definitely right. It is a snap to instal (literally). Do not expect it to offer the same level of service or performance, however, as the other Lans discussed in this article.

Now that you have read our capsule evaluations of some of the main Lan's now available, which one do you buy? That decision depends on many variables. Your decision will be affected by the kind of application software you expect to run, the number and kinds of machines you intend to connect, what business you are in, and the physical layout of existing machines that you want to connect.

Our best advice is what we mentioned at the beginning of this article. If you have a legitimate need for a Lan and a legitimate budget to support it (including provisions for a network administrator to run the Lan after it is installed), then your first move should be to find a good networking consultant. With the consultant, you should be able to conduct a thorough analysis of your computing needs and make the appropriate choice for networking your office.

● *Don Crabb is on the product Review Board of* Infoworld.

Enhanced phone range from IBM

PENNANT HILLS, NSW — IBM Australia has released a number of Rolm-enhanced telephone products, including the Cypress, which combines a digital telephone and a 9in display screen.

The other products are the Juniper II telephone system designed for connection to an IBM PC XT or AT, and the Data Communications Module, which gives Rolm telephones a data interface.

A spokeswoman said the Cypress is able to display up to 25 lines of 80 characters of text. It has an integrated data communications module, detachable keyboard and a combined digital telephone and speakerphone. The digital phone allows users to dial or receive calls even when the terminal is receiving information from a database or host computer. It includes advanced telephone functions.

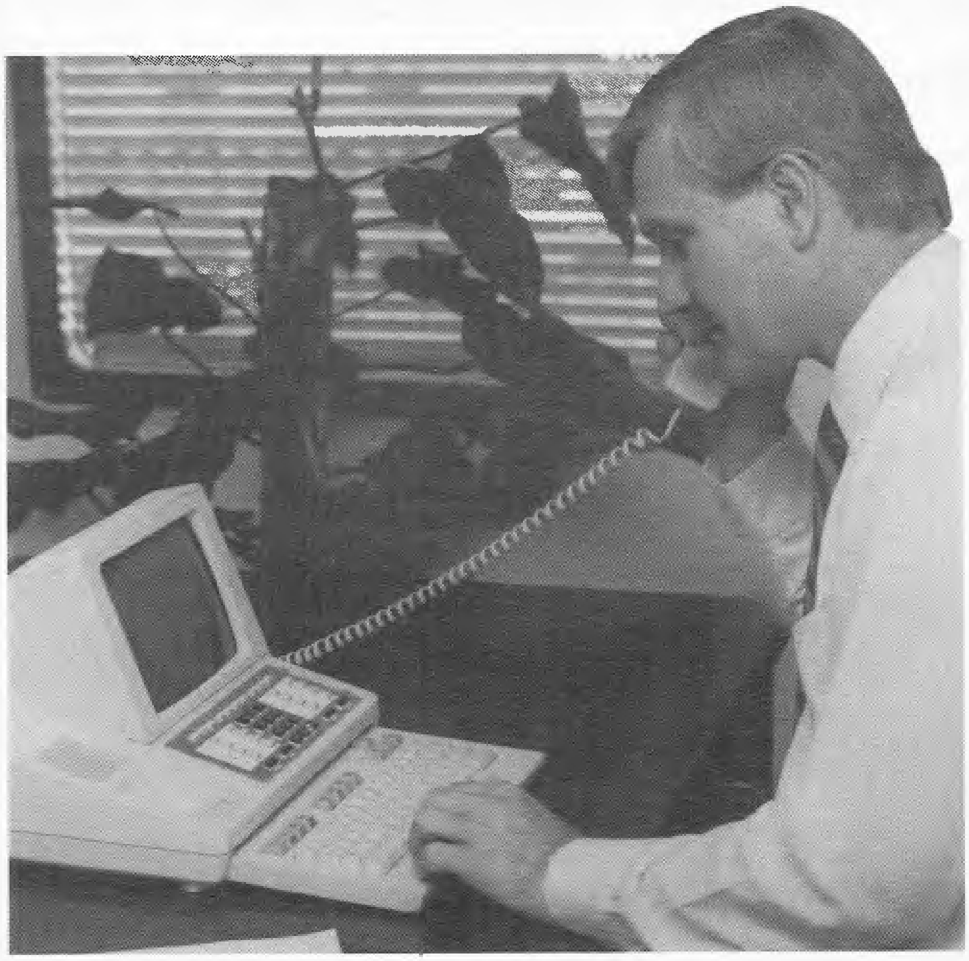
A communications path between desktop devices and the central Rolm CBX is known as Rolmlink, and it combines voice, data control and telephone power on a single, twisted-pair cable. Rolmlink operates at 256K-bits/sec full duplex, the spokeswoman claimed.

The Juniper II is described as an "integrated voice/data communication complement" to the IBM PC XT and AT. It comprises a digital Rolmphone, adapter card, cabling and software and is said to allow Rolm CBX users to take advantage of the file transfer capabilities of the PC's electronic mail, text messaging and library document applications.

The spokeswoman said Juniper II allows PC users to transfer information to and from an IBM host or another PC at 9600-bits/sec, and offers 3270 terminal emulation. It uses the Dos 2.0 operating system and requires 128K-bytes of memory.

The Cypress costs $2434 before tax, and the Juniper II $A1757 before tax. Rolmphones with DCM cost from $A775 to $A1569 before tax.

IBM Australia Ltd, Coonara Ave, West Pennant Hills, NSW 2120. Tel: (02) 634 9111.



The IBM Cypress . . . display screen holds 25 lines of text.

Office videotex terminal developed in Australia

BRIGHTON, Vic — Compulink Corporation (Aust) Pty Ltd has released a locally designed Autocom videotex terminal. The package has been developed in Australia for the corporate market, combining a communications terminal and intelligent telephone.

Comprising the Sega personal computer, Micromodem 4 and Autocom communications software, the Autocom terminal may be used with Prestel databases, Teletel databases and Ascii systems, a spokesman claimed.

The terminal contains a directory of 20 database telephone numbers which can be automatically dialled. Once the terminal is connected, user codes and passwords may be sent automatically if required. There is also a facility for automatically downloading Prestel pages from a database into the terminal's local memory. The terminal's functions have been automated reducing the amount of knowledge and effort required by the user.

Autocom also contains a personal telephone directory allowing automatic dialling of 100 numbers. Once the call is answered the attached handset is used like any other. A search-by-name facility has also been included.

The Autocom terminal.

A Prestel editor has been included in Autocom so that electronic mail and interactive pages may be filled out off-line and stored for later transmission, the spokesman said. This substantially reduces connection time charges to databases. The editor can even be used by service providers to edit database pages.

Additional features of the Autocom terminal include automatic redial, automatic answer, a real-time clock to automatically activate the system, Help and Status pages, programmable function keys, telesoftware downloading, 26 page memory, tape storage and graphics and text printouts.

As the package includes the Sega personal computer, users can use software packages such as word processing.

Compulink Corporation (Aust) Pty Ltd, 290 Bay St, Brighton, Vic 3186. Tel: (03) 596 2340. Fax: (03) 596 7350.

Radio data modem is 'faster and clearer'

MITCHAM, Vic — A re-engineered version of the Australian designed and manufactured CPU-100 intelligent radio data modem has been released by creators GES Electronics and Radio Data Systems.

The repackaged modem offers an 8dB improvement in received signal to noise ratio and enhanced software to provide a higher data throughput, said a company spokesman.

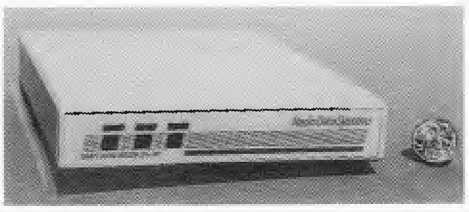
The CPU-100 series was designed to provide interfacing between RS232 digital equipment and a standard two-way radio system, and offers error-free data communication through the use of the proprietary Block Exchange Compelled Sequence Protocol (BESCP).

BESCP handles error correction and provides for addressing or polling of up to 128 units. Its format includes the use of an adaptive packet or block to increase throughput during periods of poor radio path conditions and limited DTE data presence said the spokesman.

"Because of the modem's RS232 capabilities and its full Ascii range 00 to FF Hex, data terminal equipment can consist of a wide range of devices, and PDEs as well as telemetry and industrial control equipment," he said.

Link data rate for most applications is 1200 bits/sec, although 600 bits/sec and 150 bits/sec are also supported.

Options include independent selection of link and DTE baud rates, selection of DTE flow control, addressing method, error correction enable or disable, full duplex (two channel radio system), simplex and channel occupancy sense.



The CPU-100 data modem.

Data communication range using the CPU-100 is limited by the type of radio equipment chosen to work with it.

"Range varies from a few hundred metres for use within a large warehouse, factory or store, to thousands of kilometres when a high frequency single sideband radio system is used," the spokesman said.

GFS Electronics/Radio Data Systems, 17 McKeon Rd, Mitcham, Vic 3132. Tel: (03) 873 3777. Telex: 38053 GFS.

Micalan supports '286' workstations

CANBERRA — A networking system capable of supporting workstations that are compatible with IBM personal computers and offering access to multiple host computers has been released by Mica Computers Pty Ltd.

The 10M-bits/sec Ethernet system, called Micalan II, is intended for use with workstations, communications and file servers based on Mica's Comstat family of processors, which are built on the 80286 chip and are compatible with IBM's PC AT.

A Mica spokesman said the Comstat family consists of the Prostat and Genstat workstations. Prostat is a floor-mounted system, while Genstat is a compact desktop system. Both are built on an 8MHz 80286 processor and are supplied with a minimum of 640K-bytes of Ram.

The Micalan II is able to support diskless workstations to ensure that all files are held on security protected network file servers, and Genstat can be supplied in a suitable configuration, the spokesman said.

Mica's Filestat file servers are also built on the 80286. Filestat-1 is designed for medium-sized Lans and is bundled with Novell's-Advanced Netware 286 network operating system, a hard disk and 2.6M-bytes of Ram. Filestat-2 is supplied with System Fault Tolerant Netware and provides higher performance and larger disk capacity. Versions of Netware incorporated into Micalan II support up to 32 separate file servers on a single Lan or an internetwork of several Lans. Each workstation user can be simultaneously logged into as many as eight file servers.

Communications with host computer systems are made via Mica Langate gateways, which are dedicated, diskless PC-AT compatible units attached to the Lan. Each gateway is fitted with one or more communications processor boards, each of which handles the protocol associated with one type of host. The first version of Micalan II supports emulation of SNA, DEC VT100/Ansi, and Honeywell VIP 7750.

Mica is planning an X.25 package for the Langate which will allow remote Lans to be interconnected by point-to-point communications or via a packet switching network. An interconnection to the networks built on the slower but less expensive Starnet Lan is also planned.

Mica Computers Pty Ltd, 61 Lavender St, Milsons Point, NSW 2061. Tel: (02) 929 4988. Fax: (02) 957 6914.

Robot 'takes over all the PC drudgery'

SOUTH MELBOURNE — Personal computer software, described as a software robot and said to be able to automate many communications processes, among other facilities, has been released by Distributed Data Processing.

A DDP spokesman said the British Automator mi software is "able to take over and carry out all the PC drudgery you had to do personally until now".

Interfacing with the keyboard, screen and internal clock, Automator mi will automate tasks involved in software support, development and security "as well as all manner of irksome tasks involved in micro-mainframe communication," the spokesman said.

As an example, he said that the software could be used to make periodic retries of a request to access an IBM Token Ring server if it was unavailable when a user's machine was turned on in the morning.

"It can even be taught to vet junk mail from a pigeon hole on a bulletin board, and will teach novices to operate proprietary PC/Host software by demonstrating aspects of it," the spokesman said.

An application is developed using the package's Learn development environment, which generates source code in the Automator Command Language. A completed application is compiled using the Automator Compiler, and compiled code may be issued to users who have the runtime software.

Endusers with the runtime software can execute a routine at the Dos prompt, through a batch file, or as a memory resident operation.

Both the Learn and Do parts are resident programs and the additional memory requirement is about 80K-bytes for runtime.

Distributed Data Processing Pty Ltd, 158 City Rd, S Melbourne 3205. Tel: (03) 615 6711. Fax: (03) 614 4382.

Sunlink family grows

ARTARMON, NSW — Sun Microsystems Australia has made additions to the Sunlink family of data communication products.

They include Map technology for factory workstations and DECnet compatibility for connecting Sun systems to Digital Equipment Corp computers. Also new are data communication products for the defence data network and the X.3 and X.29 networking standards.

Heading the lineup of new products are Sun's Manufacturing Automation Protocols (Map) and an enhanced release of Sunlink OSI (open systems interconnection), which also supports Map protocols for communication between Sun workstations and other vendors' equipment in engineering, office, or factory environments.

A spokesman said Sunlink OSI supports Map applications, including Map Case, Network management, directory services, and Ftam. It can be used with Map 802.4 controllers to link Sun workstations with the broadband token bus layer in Map manufacturing.

Because of the layered architecture, Sun is now able to support its native networking architecture over the broadband token bus physical layer, providing its network file system (NFS) to 802.4 local area networks. A Sun system can now serve as a router between Map and Top networks, the spokesman claimed.

Two other new products, Sunlink DNA-type protocols and Sunlink VT100-type terminal emulator, allow Sun users to interactively access and share files and resources with DEC systems on a DECnet network or over an asynchronous connection, the spokesman explained.

Window-based

A Sun system running Sunlink DNA (digital network architecture) can use DECnet protocols to communicate with DEC systems on the network, and use TCP/IP to communicate with other Sun systems on the same Ethernet cable.

With the new Sunlink terminal emulator a window-based software package, a Sun user can remotely access DEC systems through a window on the workstation display emulating a VT100 terminal, the spokesman claimed.

Sun has also expanded its offerings for access to packet-switching networks with the introduction of Sunlink DDN for the defence data network and with the addition of the X.29 and X.3 networking standards to its existing Sunlink X.25 product.

The new X.29 and X.3 software in the Sunlink X.25 make terminal-to-compute communication possible, so Sun workstation users can log into a non-Sun, non-TCP/IP host system on a public data network, and users at real or virtual terminals on the public data network can log into Sun workstations on the Ethernet, the spokesman said.

Sun Microsystems Australia Pty Ltd, 49-53 Hotham Pde, Artarmon, NSW 2064. Tel: (02) 436 4699. Fax: (02) 436 1084.

Link to IBM mainframe

NORTH SYDNEY — A software package that provides terminal emulation and file transfer between personal computers and the IBM mainframe environment through a Lan has been introduced by Bridge Communications.

Released in Australia by Network Solutions, the Etherterm/3270 lets IBM PCs and compatibles access IBM mainframes as IBM 3278 or 3279 (four or seven color) display stations, and perform high-speed file transfers as 3270 PCs. It also offers VT100 terminal emulation and file transfer with Ascii hosts.

The Etherterm/3270 software works on PCs equipped with standard 3Com Etherlink or Etherlink Plus network controller boards, which allow direct PC attachment to an Ethernet (IEEE 802.3) Lan.

A spokesman claimed Etherterm/3270 users can access a variety of mainframes, minicomputers, network file servers, IBM SNA networks and public data networks.

When communicating with an IBM mainframe, the PC appears as a 3278 model 2 or 3279 model S2B display station.

Available 30 days after receipt of order, Etherterm/3270 comes in two versions. A single-user version that operates with a standalone PC costs $A615. A network-server version that may be shared by multiple PCs costs $A3077.

Network Solutions Australia Pty Ltd, 77 Pacific Hway, N Sydney 2060. Tel: (02) 957 2655. Fax: (02) 923 2570.

Pack compatible with Token Ring

NORTH SYDNEY — Version 1.1 of Ashton-Tate's dBase III Plus and dBase III Plus Lan pack are now compatible with IBM's Token Ring network.

"Compatibility with IBM's Token Ring network is important because it enables dBase III Plus users to utilise an industry-standard communications protocol," a spokesman said.

Other networks supported by dBase III Plus include IBM PC Net, Novell Advanced Netware and 3Com's 3+ Network Operating System (version 1.0.1).

To operate on the Token Ring network, dBase III Plus requires a minimum of 512K-bytes of random access memory with 640K-bytes recommended for optimum performance. In addition the software requires version 1.12 of the IBM PC local area network program.

Ashton-Tate Pty Ltd, 80 Berry St, N Sydney 2060. Tel: (02) 959 4611. Fax: (02) 959 4620.

• SERVICES •

Csiro to give marketing help

CANBERRA — Csiro is to provide marketing and customer services for the STN International online information retrieval service. The network is co-operatively owned by Chemical Abstracts Service in the US, Fachinformationszentrum Energie, Physik, Mathematik GmbH (FIZ Karlsruhe) and the Japan Information Centre of Science and Technology.

Csiro Information Resources Unit, 314 Albert St, East Melbourne, Vic 3002. Tel: (03) 418 7266.

DDS enhanced

MELBOURNE — Telecom Australia has enhanced its Digital Data Service (DDS) by allowing a variety of speed mixes to be accommodated in a 48K-bits/sec stream with a DDS Netplex service. This contrasts with the previous facility where all services within the stream had to operate at the same speed.

In addition, the individual speeds, or channels, between two Netplex services can now be interconnected so that customers will be able to configure back-to-back Netplex services or have a combination that includes a number of Netplex and basic DDS services.

Gateway to finance news

DATABASE vendor IP Sharp launched the Dow Jones/News Retrieval Service at the Online 87 exhibition in Sydney late last month, offering Australian users a local gateway to this international source of business and financial information.

Under a co-venture agreement with Dow Jones, the service was added to the 150 public online databases offered by IP Sharp Associates worldwide. The service offers business and economic news, financial and investment information, present and past stock quotes and other general services from the database, held in Princeton, New Jersey. Users will be supported internationally through IP Sharp's network of 50 branch offices, including Sydney, Canberra and Melbourne.

The company also operates a worldwide time-sharing business, the Ipsanet private communications network, and a vast collection of publicly available data, 95 per cent of which is numeric.

IP Sharp Associates, 55 Elizabeth St, Sydney 2000. Tel: (02) 232 6366.

Money network to offer floor trading information here

SYDNEY — An international electronic information network developed by Knight Ridder Business Information Services, called The Moneycentre, is to be offered in Australia by Stockwatch Pty Ltd.

Stockwatch said that by using IBM and some compatible personal computers including Olivetti, Australian users would be able to access information about foreign exchange, commodity futures and equity markets in all leading trading centres around the world.

The company said fees for the service would be determined by users' requirements, but would range from $A400 a month, allowing access to any two exchanges in the world, to $A2500 a month for unlimited service.

This would include up-to-the-second quotes relayed in realtime from the trading floors of the major exchanges and financial reporting and analysis on financial markets, including news on the events that move them, the company said.

Reports from United Press International, Agence France-Presse, Deutsche Press Agentur and other news wires would also be available.

To help the user find items of particular interest, Moneycentre allows searching by both news category and keyword.

The company claimed information could be presented in different types of realtime graphics including bar charts, continuous charts, spread charts, minute charts, moving average charts, oscillator and tick (time and sales) charts.

Split screens

Both inter-day and intra-day charts could be created and movable trend lines added. All would include realtime price pointers, the company claimed.

Other features included audible and visual alerts, split screens, user-customised page formats and one keystroke function to access users' own tailored displays.

Stockwatch said it would arrange installation of all necessary equipment and could advise on protocol compatibility of existing terminals. Printers could provide users with a hard copy of any screen display, with optional color graphics.

Stockwatch Pty Ltd, 60 Foveaux St, Surry Hills NSW 2010. Tel: (02) 281 1666.

It pays to be quick

Novell's motto is: move fast

By Peter Scott

SYDNEY — When you are an established player in a small industry being eyed by the big companies like IBM and DEC, it pays to be quick on your feet. Ray Noorda, chairman and chief executive of PC networking company Novell Inc, believes IBM will aim for market leadership in the computer networking field, but he does not intend to run away from the heavy guns.

"We can survive with IBM, but we'll always try to stay a couple of milestones ahead of them," he claimed.

Noorda, who visited Sydney briefly last month at the invitation of Australian distributor Data Peripherals, joined the then faltering Novell Data Systems Inc in 1983. Since that time he has changed the company name, altered its strategy and turned it into a success story. In 1986 it recorded sales in excess of $US81.5 million with a net income of almost $US10.1 million.

"Novell now sells basically software, systems capability and services," Noorda explained. "Note there is little emphasis on pure products, like cards and so on.

"Services outlast almost anything else in business. Look at DEC. In 1984 it was not doing real well. It was a trying period, and one of the things that made it awkward was the introduction of PCs. But DEC offered high standards of service and maintained a good performance.

"We also base much of our business on the fact that mainframe and mini vendors work to three rules: they try many different strategies; they milk the cows and make sure that the flow continues and that they don't get scared out of the barn while the cows are full; and they do their R&D."

Noorda also gave what he described as a peanut's view of elephant world. "In our industry IBM has devised a strategy to dominate the desktop. It is a long term necessity for IBM to become dominant, but it will take a while."

His strategy to counter the threat is "to move very fast".

He has a clear view of the future of the Lan industry, which he believes will be characterised by dropping low end pricing; a rise in software prices which will continue until the big players come in; a move to more and more connectivity at the high end; and increased competition from dominant companies in the MIS world, like IBM and DEC.

To retain a leading position in the market, Noorda has developed an eight-layer strategy for Novell.

1. Continue to enhance file server technology and extend its capabilities. A very substantial part of this will be fault tolerance, which is becoming more and more important.
2. Add network management at an increasingly sophisticated level to improve network efficiency.
3. Move network systems into other hierarchies.
4. Offer Lan-related services.
5. Maintain hardware independence.
6. Continue to develop multi-user applications software.
7. Stay fully compatible with IBM's PC operating systems.
8. Market through multiple distribution channels.

In spite of Novell's rapid growth over the past three years, Noorda is realistic about the company's place in the industry.

"There is a temptation for companies like Novell to think we're doing extremely well, until we consider shared processing with dumb terminals. That business is doing very well indeed.

Ray Noorda . . . eight-layer strategy.

"I estimate that the whole computer industry is worth about $US150,000 million. In our area there are four or five of us representing about $US500 million, and another 10 to 20 representing another $US500 million.

"The market is still $US149,000 million ahead."

Nonetheless, Noorda expects things to change in favor of the networking specialists. "Be assured, we will continue to make our segment of business grow very fast indeed," he noted.

Prime's ISDN link certified

NORTH SYDNEY — Prime Computer and AT&T have tested and certified the linking of Prime computer hardware and software to three of AT&T's advanced telecommunications systems, which are intended to ensure a smooth transition to future integrated services digital networks (ISDN).

The AT&T systems were the System 75 and System 85 digital PBXs for voice and data, and the Information Systems Network packet-switched Lan.

A Prime spokesman said the equipment was tested and certified with both synchronous and asynchronous Electronic Industries Association interfaces.

Prime has announced it intends to certify its ISDN products in each country as telecommunications authorities introduce ISDN services.

Telecom Australia is expected to launch its ISDN service in 1988.

Techway buys into boards

MILSONS POINT, NSW — Techway Ltd has taken a majority shareholding in printed circuit board producer Nepean Electronic Circuits Pty Ltd.

Established 11 years ago, Nepean assembles and tests printed circuit boards for use in such applications as switching, computers, communications, satellite equipment and electronic funds transfer hardware.

Roy Bowyer, general manager of Nepean, said the capital injection would enable the company to introduce robotics and other state-of-the-art manufacturing facilities.

The shareholding in Nepean is seen as a further step in Techway's strategy to develop a range of products, mainly communications systems, for export. The first of these products to be assembled at Nepean is the Ultranode packet switch network node which is marketed by Network Automation, a joint venture between Techway and Csironet (*Communications World*, Feb, p16, and Mar, p1).

Leaner Datacraft 'well placed'

CROYDON, Vic — Datacraft Ltd has announced a significant improvement in profits for the first half of the financial year.

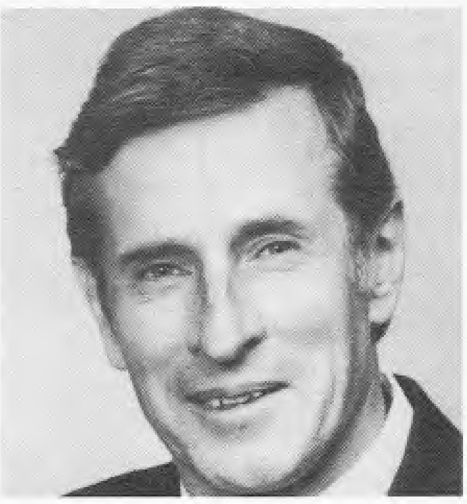
Profit before tax for the period to December 31 was $A1.9 million on a turnover of $A31.1 million. This represents a growth in turnover against the previous half year of $A7.1 million (an increase of 29.5 per cent) and an increase in profit before tax of $A3 million.

After tax profit attributable to shareholders was $A1.1 million, which compares with a loss of $A0.9 million during the previous half year.

All Datacraft subsidiaries showed increases in profitability, the biggest improvement of which was in the Australian-based operations which contributed $A2.6 million to the $A3 million turnaround.

The four main contributors to the Australian operation are Datacraft (Aust) Pty Ltd, Datacraft Manufacturing Pty Ltd, Datacraft Services Pty Ltd and Direct Marketing.

"The programs put in place by the company last year to restore growth and profitability have begun to show results and will continue to gain momentum through 1987," said Datacraft executive chairman, George Kepper.



George Kepper . . . geared for growth.

Kepper acknowledged that a large portion of the sales growth came from the implementation of the $A8 million contract for the supply and installation of a value added data communication network for Melbourne and Metropolitan Board of Works which Datacraft won in November (*Communications World*, Dec 1986, p1).

"The upper end of the Australian data communications market is now growing strongly and Datacraft is well placed to capitalise on it with its X.25 and value added network solutions," Kepper said.

He added that the company's NZ and Hong Kong activities were showing increases in business. "Datacraft, as a group, is entering the second half of 1986-1987 with orders in hand of $A17 million," he claimed.

Trading is expected to continue profitably in the second half.

"New R&D programs are now being introduced but spending is being contained within existing cost levels." Kepper said. "The results in terms of new business are not expected within the 1986-1987 year.

"Datacraft's plans and strategies for this financial year are on target. The group will be entering the next financial year as a leaner, more efficient organisation geared to take full advantage of anticipated market growth."

Financial Period	July-Dec 1985 $A Mil	Jan-June 1986 $A Mil	July-Dec 1986 $A Mil
Turnover	28.0	24.0	31.1
Operating Profit	1.4	(0.6)	1.1
Less: Extraordinary Items	—	(0.3)	—
Net Profit	1.4	(0.9)	1.1

Tandem and Boeing to integrate

CW International News Service

CUPERTINO, California — Tandem Computer and Boeing Computer Services have agreed to integrate their hardware and software products to provide joint networking and manufacturing automation systems.

Tandem brings its fault tolerant computers and networked system architecture to the match, while Boeing's strengths are in project management, design and development of application software, support and education.

The two companies are studying a number of application areas where they might develop products, including document handling, image processing, shop floor control and advanced cell control systems.

They will also investigate products that "flesh out Map and Top", said a Tandem spokesman.

The Manufacturing Automation Protocol addresses networking on the factory floor, while the Technical and Office Protocol, spearheaded by Boeing, addresses networking in office and technical environments.

The two companies will also be looking for opportunities to market existing products jointly. Tandem's systems are often used to manage a company's backbone network and to handle routing of data. Tandem is looking to expand its current products along these lines, but with an emphasis on network and database control as areas in which the company can add value.

Alliances between companies such as Boeing and Tandem have become more common in the past few years in response to the increased complexity of manufacturing and networking technologies. Both companies have been involved in at least one similar alliance.

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